The Randomized Block Theorem

for statistical designs

The Foos Coefficient of Covariance for Replicated Data Sets

First Fundamental Contribution to Statistical Science in the 21st Century

Dedication

The Randomized Block Theorem, better termed the Foos coefficient of covariance (to distinguish it from other parameters using the same term) for replicated data sets, is dedicated to the autistic, whose remedies, desires and sufferings are so starkly manifest, yet still unheard and unseen in a world made blind by greed. The proof is a valid research tool for those desiring to improve on legitimate scientific research of any kind, including proof of the cause of autism. This theorem will make the world a better place. A little bit better, anyway. The Examples section provides a legitimate proof that vaccines and amalgams do cause autism, among even worse things.

This theorem enables improved methods for both design and analysis phases in scientific research. The formulas and concepts for the coefficient of covariance for replicated data sets of any number, not restricted to blocks in an ANOVA design, copyrighted by Alan R. Foos, inclusive of all intermediate formulas involved in the derivation, were originally produced independently and only by Alan R. Foos between 1978 and 2007. No use of the formulas or concepts used herein, except for the existing combination formula and textbook sums of squares, may be made without permission or proper credit given, including comparable expressions with the same meaning but using substituted symbols.

If you are not thoroughly familiar with the randomized complete block design or can benefit from a quick refresher, this summary from NDSU is a very straightforward description. Please look it over. If the information on that page is readily understood, then you should easily grasp the points made in this paper as following naturally from well known and accepted principles by means of rather complicated yet ordinary algebraic manipulation. The new parameter derived in this paper, termed the Foos coefficient of covariance, is a useful aid for the design and analysis of any replicated data, not just randomized blocks, including treatments on any level, as it is hoped the reader will appreciate.

Acknowledgments

After enduring challenges that the randomized block theorem and my transcript are forgeries, it seemed that gratitude should be expressed for those whose own unselfish dedication imparted this gift of intellectual achievement for expressing the physical laws created by God in mathematical terms. The Randomized Block Theorem introduces a new and universally valuable parameter, the Foos coefficient of covariance for replicated data sets. This is also called the r value, a most helpful aid in optimizing the design and analysis of statistical trials for the social, physical and biological sciences which in turn enable a practical, elegant and accurate reflection of reality with mathematics. It is not the same as the correlation coefficient, infrequently also called an r value.

The greatest debt of all is always owed to Jesus , our Lord and Savior, whose presence assures us that the physical universe follows a divine order and whose saving grace and mercy delivers us from blind cosmic forces and gives us eternal life in the Kingdom of God. Let this contribution to true science fulfill its earthly objective as an aid in unbiased scientific research for a safer and happier world. Special thanks is given to Dr. Ron Holland of Lewiston, Montana for his unsurpassed Christian guidance toward that end. My real challenge will be to complete my mission in Christ and finally be accepted of Him.

I'd like to express my thanks to Dr. Clifford Davis, my first professor who enrolled me in his college biology class, Zoology 101, at Montana State University in Bozeman in 1964 as I was turning just 16. Where Libby Henrietta Hyman's exhaustive reference books failed, Dr. Davis had helped me identify many local microbes viewed with my microscope.

I'd like to thank the US Army. Unable to get a scholarship, by volunteering for two year's Vietnam infantry in January of 1968, there would be GI Bill funding to help obtain a quality university education, my parents also deciding not to help. Even though we were told that 95% of infantrymen were dead within weeks of arriving in Vietnam, as did one friend a few weeks later, the army graciously rerouted me to Dugway Proving Ground at the last minute. There I was not secretly exposed to chemicals as some or with nerve gas as were the 6,000 sheep that died shortly before my arrival. Instead, I was very well treated and made E5 rank in 15 months. The gauntlet of pre-combat vaccines did destroy my health and nearly cost me my life 11 years later, though it took another 24 years to sort out the cause. Fortunately, there was no squalene in those as now in the Gulf War anthrax vaccine, a fact initially denied by the government, but which turns out to be the primary cause of up to 50,000 veteran deaths and the severe illness of roughly another 400,000. Realistically, roughly 70% (now closer to 80%) of the post Iraq military force is quietly dying.

Next I owe most sincere gratitude to the father I loved more than my own life, Henry Foos, a man of rugged good looks and robust health, immeasurable charm, generosity and unsurpassed diligence. Even though he reneged on his promise to help me fulfill my destiny in college, he was generous enough to drop dead from no apparent cause a week before my transfer to Vietnam, thus sparing my own imminent death, if not my soul. Being sole surviving son exempted me from combat. The Army's GI Bill was subsequently sufficient to get myself and wife through three college degrees, though short one last year to finish the PhD. After serving at Dugway, I returned to Montana State University because its reputation in the sciences was superb back then, and, being a fool, I was loyal to Montana.

The Foos coefficient of covariance, FCC, or r value for replicated data sets, is a measure of the degree, zero to 100%, of linear correlation of all combinations of cells (treatments in the RB design) from replication to replication. The FCC may also be called the Cat's Cradle, since the lines across "blocks" would form that design. Unlike the limited concepts of r and r squared, and not restricted only to randomized blocks, the Foos coefficient of covariance represents the overall degree of linear consistency among replicatations and can be applied to any multiple sets of data, even treatment effects and nested factorials. I first discovered this relationship in 1978 when working on the field plot for my thesis at Montana State University, but without a computer editor, the lengthy derivation could only be tackled with pencil. The first typed version was finished in 1992 with Mathcad, and the actual r ratio was not put into written form until 2007 using Ventura Publisher. While the proof in this paper centers on the r value for blocks in a randomized block design, the same concept may also be used to calculate a Foos coefficient of covariance for treatment effects (including separate members of factorials) and both rows and columns in a Latin square, or for any other data replications. The r value represents an improvement in the design and interpretation of results for ANOVA strategies in particular, where the design and analysis of blocks may benefit from a more thorough approach.

An initial distinction between this r value and the conventional coefficient of correlation, r, (or r squared, the coefficient of determination) should be made. The r value defined in this paper can be defined as the ratio of the average covariance among treatment pairs from block to block to the average variance of treatments themselves (taken one at a time across blocks), and also as the fraction or percent of variance accounted for by covariance among all combinations of treatment pairs, i.e., ratio of average covariance among treatment pairs to average variance of single treatments across replications. It is also the block mean square reduced by the error mean square divided by the sum of treatment variances across replications. The conventional r, however, also known as Pearson's correlation, is the ratio of covariance between two data pairs to the product of their standard deviations. With some algebraic manipulation, r squared can also be shown to be the ratio of the sum of squares for one variable after reduction by residual error to the original sum of squares. In practice, r squared is usually used for measuring the goodness of fit between a calculated set representing the best fitting model and the original data set, thus is the amount of variation of the independent set explained by the predicting model; that is, the dependent variable. The chosen model for the dependent variable (predictor) usually has the lowest p(F) and highest r squared value from among numerous combinations of variables or transformed data sets.

If there were only two data sets (treatments), then the "r value" would be identical to both the coefficient of correlation and determination if the standard deviations of both were the same (slopes equal, therefore r =1). Both the r value and r (squared) are measures of linear correlation, but the concepts and formulas are different, where the r value is the percentage of linear association among all combinations of any number of data sets as explained by the average covariance of pairs to the average variance taken one at a time. If there is zero sampling error, the r value will be one for a set of blocks intersecting a perpendicular gradient and zero if the blocks have no particular orientation. The major advantage to the r value derived in this paper is that it provides a means of optimizing block orientation in randomized block designs, thereby eliminating bias in treatment effects. It then also permits the measurement of

interactions or other distortion. It gives a more sensible estimation of either block or treatment effect than F value since it varies from zero to one (100%) as F varies from one to infinity (and p(F) from 100% to 0%) for the same data set.

Beyond these valuable contributions, however, is that the r value expresses more information than F. Like F, it contains the mean square value of interest and the error mean square, but it also includes cross block treatment (or cross treatment across blocks, or between any replicated sample sets, depending on the type of r value) variances. This has the effect of removing bias from parameters from which a conclusion of significance may be drawn. The F value is simply the ratio of the mean square of interest to the error mean square, while the r value (correlation of covariance) first subtracts the error mean square from the mean square of interest, then divides by the sum of individual cross block (treatment) variances, thus the r value represents the percentage of cross block variance that can be attributed to true gradient effects as manifested in the correlation of effects from one replication to another. The F value does not necessarily reflect those differences properly because any sampling errors isolated in one block that do not affect other cells in the block can produce a larger block mean square without correction for any failure of that effect to be equally distributed throughout any one replication affected.

It is also possible to calculate an r value for treatments in a randomized block design using an analogous, but legitimate, rationale. The advantage of this is that instead of assuming a uniform gradient across treatments, treatment effects (or transformations of) are assumed to be linear as is the traditional assumption for ANOVA designs, and the treatment r value, sans sampling errors, provides a pooled goodness of fit for that assumption with respect to the overall experiment. Non linear effects can be identified with precision by data transformations and appropriate coefficients for treatment factors calculated by stepwise regression techniques for inclusion in prediction models. In addition, the case where an r value for blocks is equal to or greater than the r value for treatments in a given experiment provides a firm rationale for including the extraneous (block) variable as one of the independent variables included in multiple regression procedures for predicting treatment effects.

We start with the observation that any significant variation among replications (blocks) in a randomized block ANOVA design must derive from positive covariance among replicated treatments. This must also be reflected in covariance of treatment pairs from replication to replication. Mathematical derivations will be used to define exactly what the relationship between covariance and replication significance is and understand how block to block treatment variation is useful in reducing sum of squares and increasing experimental precision. An r value is calculated that represents the fraction of (average) covariance for all combinations of treatment pairs across blocks to the total (average) block to block variance. If not intimately acquainted with these concepts, please review Weisstein's definition(Weisstein, Eric W.)of variance and covariance with appropriate mathematical formulas. Though randomized block designs may be the most common experimental design, they are usually conducted without strict regard for how they are oriented with respect to the extraneous variables they are intended to filter. As a result, both block and treatment effects are vulnerable to distortion and the effects of extraneous variables, including treatment interactions,

customarily but often needlessly excluded from results. This paper provides a remedy for these shortcomings and allows extraneous variables to be included in multiple regression analysis where appropriate.

Since this newly derived r value represents the ratio of two variances, it is similar to the conventional correlation counterparts, r and r squared, the "coefficient of covariance" terminology is appropriate. They are not the same concept exactly, but the Foos coefficient of covariance can be correctly interpreted as the overall (or average) strength of linear association of all combinations of data sets taken two at a time across any set of blocks. Because there are other parameters called the coefficient of covariance, the term Foos coefficient of covariance may be required to distinguish between the two. This is also referred to here as the r value, which represents the average linear correlation among treatment pairs from block to block. Again, this r value is distinctive. Additionally, the Foos r value is a ratio that falls within the scope of F probability distributions. Basic definitions and formulas for correlation coefficients and F values can be found here (Regression Tutorial, MTSU). The basic formulas for BMS and F ratio in a randomized block design using the conventional ANOVA table are illustrated byStatsDirect Limited(includes basic statistical definitions including the null hypothesis). For designs using the approach presented in this paper, the extended use of multiple regression analysis using transformed data sets for predictors, including measurable extraneous variables, is now allowable under conditions where an optimum r value can be demonstrated.

While reading this paper, keep in mind that a new and very useful concept is herein developed that extends the functionality of the most common experimental designs and holds existing statistical procedures to a new standard of accountability. Since this endeavor has been a solitary one, it is bound to be blind in some respects, so feedback of any kind is very desirable. Not only may there be errors that need correcting, but a foundation has been established for an important expansion of statistical science. On one hand, the concept and its derivation should be intuitively obvious to any good mathematician, but it has been the habit of science to overlook simple relationships which later turn out to have extremely important applications. The discovery of the calculus by Isaac Newton is no doubt the best example, the importance of which could not possibly be matched.

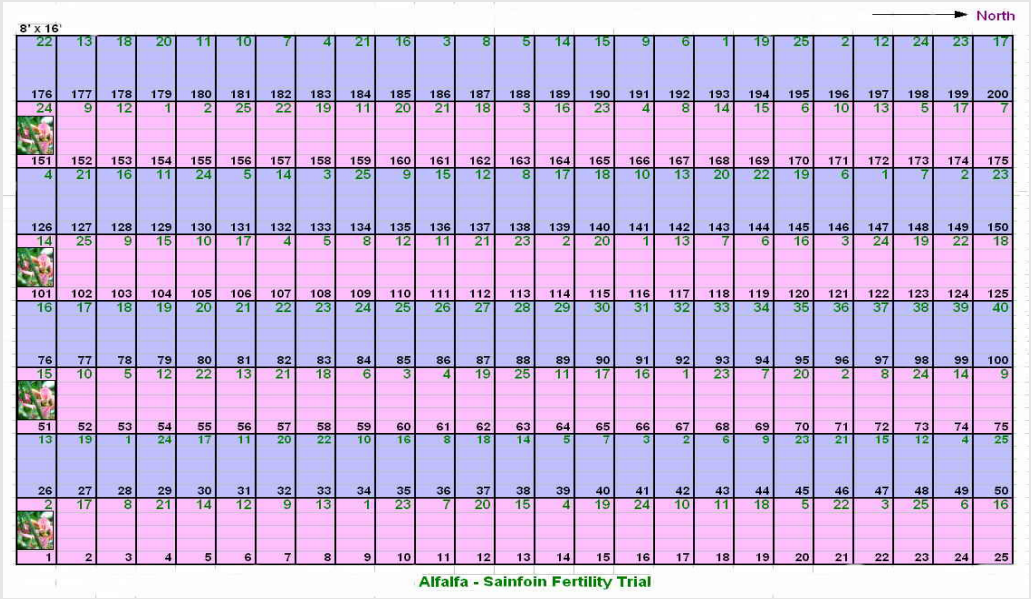
Ideally, assuming the direction of one variable gradient or vector sum of several across blocks is uniform, the r value of treatment pairs would indicate the deviation from right angles that it intersects replications, the r value (not the same as the conventional correlation coefficient) of 1 corresponding to a perpendicular intersection, and an r value of zero meaning an intersection of zero angle (blocks are parallel to the gradient). Such information could then be used to increase precision in subsequent experimental designs. If the extraneous variable can be identified and measured, the magnitude and direction of the gradient can also be estimated and used with other regression variables for predicting outcomes with better precision irrespective of whether an extraneous variable is included in the final regression. It is important for the reader to understand that this theorem represents a fundamental and original insight into the established principles of statistical design, so that any reliance on recent developments in the field is neither necessary nor relevant. Supporting citations are dated according to the approximate time that the theorem was first developed, and the scientific principals have not been otherwise subject to change.

CAUTION: If a set of parallel blocks is intersected by any uniform gradient, and subsequently rotated as a unit around a common center, an oblique angle could be measured as a perpendicular intersection (if for example a line representing a secondary vector intersecting a block at midpoint also intersects all blocks at midpoint - this will result in an r value of one where all points of intersection vary by the same amount between blocks). It is the lack of uniformity from block to block that produces covariance and r values less than a perfect one. If there is no error term, i.e., some background noise, then any uniformly measurable differences in blocks produced by the same angle of incidence other than zero will produce misleading r values since all cells may be affected to a more or less consistent degree, thus masking distortion in treatment effects. To avoid distortion among treatment effects it is necessary to ensure that the primary vector of intersection is perpendicular to all blocks. Not only will an oblique angle cause distortion in treatment effects, but it will reduce the block mean square and mask block differences (BMS). This idea is equivalent to the cautionary comments cited later on, but emphasizes the need to identify the primary gradient. It should also be stressed that any lack of uniformity among cells from block to block, and only such, with or without treatment interactions from gradient effects, will produce r values less than one (with a corresponding increase in random error, EMS). The later section on the Equivalence Principle and Gradient wheel (Gradius) demonstrates a method of identifying a primary gradient as a prerequisite to careful experimental design.

The "candy bar" (representing a set of blocks lengthwise) near the end of this paper may also help visualize this concept using a lighting gradient. The strongest light is towards the upper right. It is not parallel because it is strongest between top and bottom, not side to side. But it is not quite perpendicular, either, because it also varies from side to side. Not only that, but it is not quite uniform, because it is strongest along a clearly visible axis of origin. As a result, the optimum value of r will be less than one for a set of blocks so affected. But there is clearly a definite origin to the light source, such that there is an r value less than one which represents optimum orientation. Let us assume that optimum value for r is 0.8, meaning that we can expect some distortion in any experimental results because of the lack of gradient uniformity, but we can minimize that by optimum orientation (perpendicular). Under such conditions of a non-uniform gradient, including the extraneous variable would be questionable, but identifying it beforehand also presents awareness that treatment affects may be subject to distortion where randomized within a limited number of blocks.

If we were to calculate the precise r value, it would be somewhat less than the optimum of 0.8, perhaps 0.7, because the light source does not intersect the top of the block in the exact center. The only way to know the optimum r value would be to measure the gradient before the experiment is conducted, precisely at points across a set of blocks, and inspect the results to see if the balance from end to end of the blocks is uneven (average treatment variances across blocks are not equal even though covariance is more than zero). If so, then there is clearly an origin to the gradient and blocks can be adjusted to achieve optimum balance. Since there is an obvious origin (light source) to the gradient, the optimum r value will also be slightly less. If the existence of an intersecting variable is not known, the value and direction of r indicating consistent block to block effects could reveal its presence, degree of or lack of uniformity and suggest improvement in block orientation. The use of two sets of blocks arranged at varying angles could also be helpful in verifying the direction, origin and magnitude (if not identity) of a gradient variable.

It may also be helpful to view the following chart which represents the plot layout in my 1976-1979 thesis work at the Plant and Soils Department, Montana State University, Bozeman. Each pink or blue strip is a block of treatments. Part of the experiment was also a comparison between two forages, the pink strip is sainfoin and the blue is alfalfa. The treatments for both were identical and included two factorial sets for N, P and K fertilizer treatments and several micronutrient paired comparisons. The cell numbers in the upper right corners refer to the treatment number after randomizing. The chart just below that is how the matching field plot appeared after planting. My concerns over gradient effects first led to the development of the randomized block theorem in 1978, but the equations were difficult to present without computer assistance. Several versions were written after that until the last in 2007. The layout of these field plots is probably somewhat fixed, such that much flexibility in orientation is not allowable.



There are three kinds of degrees. There are paper ones which convey a false impression of mastery over a certain subject area. These are not difficult to find. Then there are real degrees consisting of the proven ability to accurately recite the content of a particular body of information and demonstrate the mastery of certain skills, usually computational. Then there are true degrees, the ultimate objective of a quality university, where advanced mastery of subject material in several disciplines is merged to give the holder a far deeper understanding than the holder of the ordinary degree is capable of. The holder of a true degree has the ability to study any complex problem in depth and explain the inner workings of it in a way that nobody else can. Only true degrees reflect an advanced education. They are not usually won in the space afforded by a baccalaureate or even with a PhD, and even then such ability requires extreme personal sacrifice. A true degree and a real education is what I achieved in my eight years of university study in science and mathematics, without a shred of outside support and while enduring severe hardships owing to poverty and overwork. You wouldn't let your child fly United if the pilot was untrained. I paid dearly for the ability to give you also the key to advanced insight, having earned the right to know as well as the unusual ability to impart to you the very rare ability to understand.

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Photograph of the alfalfa/sainfoin experimental plot, 1978, Montana State University Experiment Station.
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Section 2. Introduction: Randomized Block Designs.

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The proposal is based on the fact that if a gradient (or trend) exists among replications in a randomized block design (the assumption usually made for randomized block experiments), that all treatments are affected equally (i.e., exposed equally in each separate block) from one replication to another. This is the ideal case only, in which each set of replications must be oriented at the same right angle to the gradient. This ideal is seldom realized in practice, but provides opportunity in certain cases for measuring extraneous variables of interest. This trend can be demonstrated as covariance among treatments, and an r value (zero to one) calculated to estimate the degree of efficiency in terms of the angle of gradient intersection (90 degrees to zero). Two ANOVA models are in common practice. The first model is what is called a CR (completely randomized) and the second is called an RB (randomized block), where TMTs (treatments) are randomized within each replication. Each replication then comprises a set of randomized blocks, where the treatments within the block are randomized so that none are preferentially exposed to extraneous influence. This proof provides a method for measuring gradients, optimizing design layout, and measuring block orientation.

In a CR, completely randomized, design, the more replications are used, the more precision is obtained as reflected in smaller ESS (error sums of squares). This is not directly measurable since replication variance does not enter into the ANOVA table; thus, completely randomized replications do not increase experimental precision under controlled circumstances designed to directly filter it, but only average background distortion or sampling error. The CR is also called a one-way design. In the RB, or two way, design, the overall SS (sum of squares) is reduced by both treatment sum of squares (TSS) and block sum of squares (BSS). The ratio of mean squares obtained by dividing by degrees of freedom (number of treatments or blocks less one) is called F, and corresponds to the probability that the differences are caused by chance (the null hypothesis). The required probability for rejecting the null hypothesis, p(F), may be read from a table or an exact p(F) calculated for the F value. Precision is not always gained by putting replications into discrete blocks - it can even be reduced; hence, there may be no point in blocking. While it would not seem meaningful to treat separate replications as blocks, especially where not physically separate, the Foos coefficient of covariance is not a difficult check to perform for hidden effects.

How can that be when variation is always positive? For several reasons, one being that the amount of variation is a measure of significance only when divided by remaining degrees of freedom, so the TMT F ratio may actually be decreased by introducing blocks that reduce both degrees of freedom and error SS. In fact, that must be the case unless there is an extraneous variable intersecting blocks that causes true differences among them (this implies TMT covariance from block to block). The variable may be known or unknown, and the gradient may or may not (as in agricultural field plots) be perfectly uniform. Another problem is that even if TMT precision is gained, the results can be erroneous if the extraneous variable is not independent of TMT variation. This can happen even if the variable itself would not interact normally, but does so anyway because the gradient intersects a small number of blocks at less than 90 but more than 0 degrees, thus affecting some treatments more than others.

Even if the interaction is zero, to the extent to which blocks are not arranged perpendicular to the extraneous or intersecting variable, any reduction in the SS will be lost because block differences will be reduced (and treatment effects likely distorted as well) and will thus not reduce the EMS (error mean square). Snedecor and Cochran, page 256, point out by means of an example that the blocking will improve "accuracy" if the mean square is twice the residual mean square, and that there are "real" differences between replication means. This implies that if no real differences among replications (as blocks) exist, then there was no point in going to the trouble of blocking, even though there may be plenty of reasons to have that many replications in a CR design. Generally, more random replications can be used to match any precision gained by using blocks, but if the block design shows no differences, it may be possible to gain precision by treating the experiment as CR in the final analysis. It may also be possible to use the gradient wheel method described later using final results for exposing unanticipated bias and for making adjustments to layout in the next field plot, if possible to make them.

Mendenhall, page 653, states that blocks may represent temporal, spatial or other differences in experimental replications. They state that if several treatments are compared where a trend occurs, a part of the variation can be removed by blocking. Actually, this really means that extraneous variables that would otherwise obscure true treatment effects are instead isolated between replications instead of being contained within them where they will contribute to sampling error and contaminate results. But then if we can safely assume that effects of the extraneous variable are evenly distributed, no difference in conclusions can be expected, only that an extraneous gradient is at

work. It isn't that the variation is actually removed from the experiment, only that it is prevented from having an arbitrary or uncontrolled influence on treatment effects, and this effect should be of interest. The blocked variable has an effect on treatments, but ideally, its effect influences all treatments within a single replication evenly in accord with the fact that design has distributed the strength of that variable equally from block to block. It may also have an interaction with treatments,and its effect be justifiably regarded as a separate treatment and included with others in a stepwise regression for predictor variables. This is, in fact, the preferred approach when possible. Of course, not all blocks may be represented by quantity, but this will not prevent study of any effects or interactions that blocks may have on treatments. Nor is it absolutely necessary to regard such replications as blocks for the study of Foos coefficient of covariance r values among replicated data sets. The tapping of conventional designs for covariance coefficient analysis may reveal many hidden variables of interest.

It is fair to restate the conventional approach and say that if there is no block to block gradient or trend, then no variation can be removed. The question may arise as to how much variation is necessary among blocks for there to be success (for a reduction in EMS). This may not be initially easy to grasp. Mendenhall provides a section called Some Cautionary Comments on Blocking, where these points are covered on page 712, essentially that block designs should not be used to investigate the effects of two factors; otherwise a randomized block ANOVA could lead to erroneous conclusions. By this, I think they mean that a blocked variable is not usually suitable for inclusion in the results, as was the case in my thesis, I also think the implication is that it cannot be assumed that the extraneous effects are uniform from block to block. This I do not think is at all true in theory, though common practice in agronomy is to consider the extraneous variable as meaningless in the results, and that this assumption stems in part from being unable to control it. While this may be a practical limitation for most agronomy trials, it is not a theoretical requirement of experimental design, nor should the effects of so called nuisance variables necessarily be ignored.

Thus, a moisture gradient as is often the object in agricultural designs, should (ideally) cause uniform changes in yield for all treatments from block to block (covariance) since otherwise the block - treatment interactions will distort results. Actually, even in the best design, the bias interjected by an extraneous variable cannot be casually dismissed unless it is measured and its effect included in the results just as any other treatment. The most common assumptions in randomized block designs actually are a way of pretending that if the extraneous variable is blocked, then there is no need to consider its influence, yet it may well have biased treatment results by interaction even where properly oriented. This is contradictory to the often stated effect of nitrogen on plant growth in that the effect of nitrogen is compounded by unit additions of moisture. Because such interactions are usually ignored and block orientation not analyzed, the "coefficient of covariance" r value developed in this paper may help remove a serious limitation in RB designs and subsequent regression technique. This can be expressed as follows:

If regression analysis is used to incorporate the block variable, appropriate interactions with all treatment variables may be identified with mathematical precision using routine regression and filtered from the error term as is routinely done for other (intrinsic) treatment factorials, allowing any mixture of intrinsic or extraneous variables which best fit the predictor.

Of course, only randomized block designs with measurable gradients will permit this (for example, blocking on gender

will not allow regression analysis). It is neither necessary nor desirable to require a linear relationship for gradient effects (with raw data) any more than is customarily required for treatment effects as long as the appropriate data transformations and interactions are selectively identified for goodness of fit under routine multiple regression procedures for inclusion in equations for predicting the dependent variable effects. The results for my thesis indicate that the most appropriate relationships for nutritional responses are invariably quadratic, a sensible conclusion as too much of anything may not be good.

Hence, the question arises as to whether ignoring the nature and effect of a gradient is the most responsible course in certain cases. For many purposes, the effects of a gradient represents uncontrolled conditions which may not be representative of those found in the field, and failure to identify and measure these effects bring the applicability of results into question, even more so if gradient interaction with treatments exists since distortion in results would be omitted under assumptions that they are not present. For example, if a moisture gradient affects yields, the ideal would be to identify and measure the gradient as well as its effects. If moisture does in fact cause an interaction, then treatment effects will be distorted whether the effects of a block factor are ignored or not; therefore the presence of a gradient should demand thorough measurement of its effects on treatments. Alternatively, it is possible in some cases to incorporate the moisture variable as a potential factor in the experimental design and statistically determine the effect of the gradient variable including interactions with treatments. This can be performed with potentially high precision using standard regression techniques.

In reality, an assumption of non interaction may not be strictly true, but it should be close even if the effect of an extraneous variable is ignored since such distortions will also affect intrinsic variables of interest. Therefore, the RB design is usually used to filter (or average) the effects of nuisance, extraneous variables. These are effects that cannot be precisely controlled or measured and which may cause treatment interactions which are less severe if filtered, and it is reassuring when blocks are significant. It is, however, not always the case that extraneous variables cannot be measured, that these are not sufficiently uniform, or that their interaction with treatments is of any more concern for the extraneous variable than their unseen effect on the treatments under consideration. Additionally, a carefully constructed RB design can be used to great advantage for measuring effects of extraneous variables if experimental controls are sufficient and blocks consistently oriented.

Mendenhall continues in his section on blocking by stating that it is not always beneficial, that it is so only when the between block to block variation is large enough to overcome the smaller degrees of freedom left in the error mean square. This may sound like obscure rattling to most people, but in the ANOVA design, the probability of treatment effects being meaningful depends on the number of observations, and if there is no extraneous variable effect, then blocking may actually mean a lower degree of confidence in the observed results. This is a feature of the F ratio that all statisticians will readily appreciate, so I will not explain it further, other than to say that even if there is no obvious gradient for an extraneous variable, additional replications will generally give better results, yet there is little point in blocking if there is no gradient to block against. There is no harm in making such an attempt, however, and if the attempt exposes no such effect in the results, it is just fine and better not to include the block sum of squares in the ANOVA table. Nevertheless, either the conventional block mean square or the r value developed in this paper may be

useful as a test in determining whether or not such an effect does indeed exist, if the blocked ANOVA is preferable to non blocked, and if the extraneous variable may be included in the regression, whether identified or not.

It is important to note that only to the extent that replications are consistently oriented at right angles to the extraneous variable being filtered can there be a significant block variation. Mathematically, Mendenhall's statements are correct and fairly obvious, but a gain in information only occurs where there is a significant block effect, just as for treatment effects. There is no reason not to use blocks to measure a block effect, as long as the effect is measurable and imposes no external bias on the plot, i.e., the external gradient is directed perpendicular and evenly across replications as much as possible. If the r value, that is, Foos coefficient of covariance for a set of blocks set is as large as the coefficient of covariance for any set of treatments within the same blocks, then you know that the inclusion of block effects and interactions is no less justified as is routinely applied to treatments, and the block variable can also then be included in multiple regression techniques.

Snedecor and Cochran on page 264-5 define the efficiency of blocking as the fraction of sigma squared for a CR design divided by siqma squared for the corresponding RB. The ratio must exceed the value of one for blocking to succeed, and if the experiment was an RB, then the numbers can be inserted to give the comparative value. They provide an example on that page. Substituting sigma squared with ESS/EDF where EDF is error degrees of freedom, and manipulating terms yields the fact that for blocking to succeed, the ratio of SSE for RB to the SSE for CR must be LESS than the ratio of EDF for RB to EDF for CR. This paper introduces a new measure of efficiency in terms of a combined coefficient of covariance for treatment pairs, the ideal r value being 1 for a perpendicular intersection of blocks in a uniform gradient. An r value of less than one suggests the possibility of improving the design by reorienting blocks.

Note that the EDF for the RB is always less than EDF for the CR, since it is equal to the EDF for the CR design less the degrees of freedom (j-1) for blocks. This means that if blocking is to increase precision, the ratio of the ESS for RB to ESS for CR must be less than a value which is less than one; therefore, the reduction in sums of squares by blocking may very possibly decrease experimental precision. This happens where no real (significant) trend (gradient) exists from block to block and the SS for blocks is not large enough to overtake the loss resulting from lesser degrees of freedom. The extent that it is large enough is related to co variation among treatments across blocks, as a zero value for co variation always produces an F ratio equal to one. By substituting the required F ratio for such an experiment into the equation relating F and covariance, the minimum covariance required for any F value (a least significant covariance (LSCOV)) may be derived. Therefore, blocking is meaningless unless a gradient exists due to an extraneous variable or the vector sum resulting from a combination of variables. Covariance and block significance mutually depend on such an extraneous variable exerting an influence on blocks.

A mathematical equivalent for F in terms of covariance is intuitively implied since blocks cannot differ significantly without covariance among treatment pairs. This way of approaching the issue may be more meaningful than the F ratio of two sigmas, since mean square values can be used to calculate covariance effects and r values ranging from zero to one are more informative than F values without upper limits. A trend initially exposed by covariance or

calculated r values between two sets of data suggests an extraneous variable is affecting results, and randomized block designs that exploit covariance in such a way can be used to advantage. Since the extraneous variable is not always known (or is a combination / vector sum), r values for treatment pairs in preliminary experiments can be helpful in isolating and eventually identifying unknowns the importance of which were previously overlooked. Results can also help in designing subsequent experiments. Snedecor and Cochran, p255, observe that familiarity with plot technique often gives the experimenter the ability to roughly predict the effects of an experiment. The preliminary use of 2-3 treatment replications set at different angles at random, temporally or spatially, can expose hidden variables and suggest larger RB designs that exploit them for increasing experimental precision. Covariance r values may also, in certain cases, have more practical value than treatment variables in the identification of cause and effect relationships; for example, the etiology of diseases and the identification of preexisting causal links between disease syndromes.

The standard ANOVA for any RB is a shortcut to calculating the combined sum of covariances across blocks. From that, an average covariance or r value for any RB can be readily obtained. The number of degrees of freedom for a randomized block r value depends on the number of treatment pairs in the numerator; that is, the combination of treatments taken two at a time as well as the denominator of t treatments. A function p(r) for the null hypothesis being true should be derivable since p(r=1) would always be zero percent, and p(r=0) would always be 100 percent. In any case, note that p(r) should also be a function of sine theta, where theta is the angle of incidence to randomized blocks by an intersecting gradient. The following equations for block mean square, (BMS), error mean square, (EMS), F, average covariance and r for covariance ratio, will be proved in the process of establishing the formula for an r value representing the Foos coefficient of covariance for block designs (Sxy refers to the covariance of treatment pairs where x and y is shorthand representing all combinations for any number of treatment pairs). Sigma squared for t treatments also designates the cross block treatment (sample) variance for any treatment, the sum of those forming the denominator of our derived r value in terms of the ratio of covariance to overall variance.

$$EMS = \frac{\left(S^2{}_{x_j} + S^2{}_{y_j} - BMS\right)}{\left(t-1\right)}, \quad \text{Treatment variances may be designated } \sum_{i=1}^{t} S_t^2$$

$$BMS = \frac{\sum_{i=1}^{t} S_t^2 (Treatment\ Variances\ Across\ Blocks) + 2\sum_{n=1}^{C_2^t} S_{xy} (Twice\ Covariances\ of\ Treatment\ Pairs)}{t\ Number\ Of\ Treatments}$$

The Foos Coefficient of Covariance for Replicated Data Sets

$$F = \frac{BMS}{EMS} = \frac{(t-1)}{t} \frac{\left(\sum_{i=1}^{t} S_i^2 + 2 \sum_{n=1}^{C_2^t} S_{xy} \right)}{\sum_{i=1}^{t} S_i^2 - \frac{1}{t} \left(\sum_{i=1}^{t} S_i^2 + 2 \sum_{n=1}^{C_2^t} S_{xy} \right)}$$

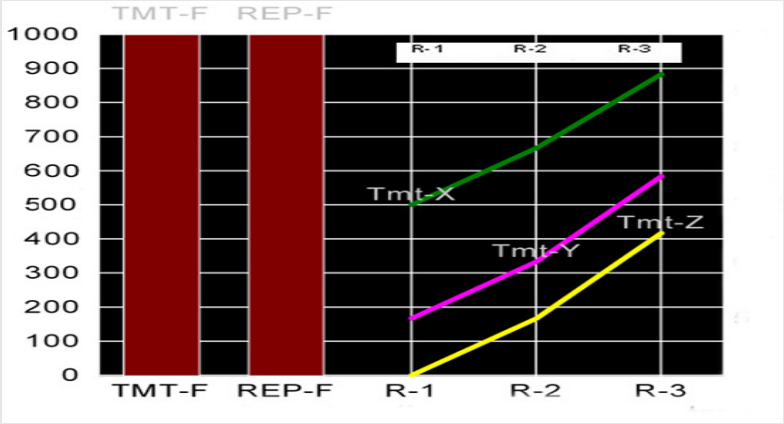
$$r = \frac{\overline{S_{xy}}}{\frac{\sum_{i=1}^{t} S_i^2}{t}}$$

$$r_{rb} = \frac{EMS(F-1)}{\sum_{i=1}^{t} S_i^2}$$

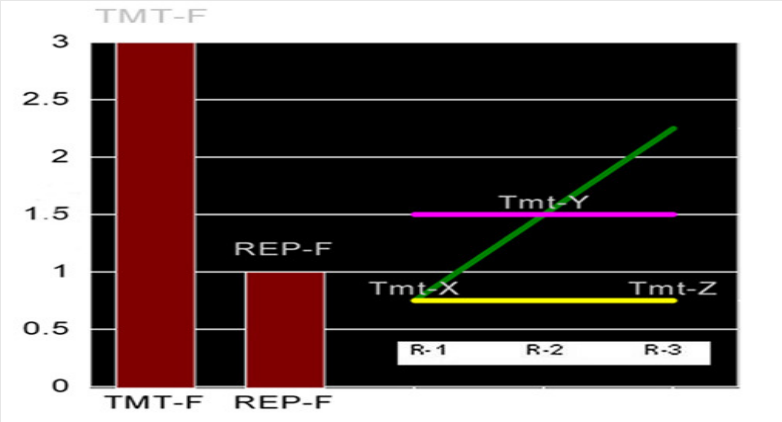
$$r_{rb} = \frac{BMS - EMS}{\sum_{i=1}^{t} S_i^2}$$

Section 3. Discussion Introducing Proof.

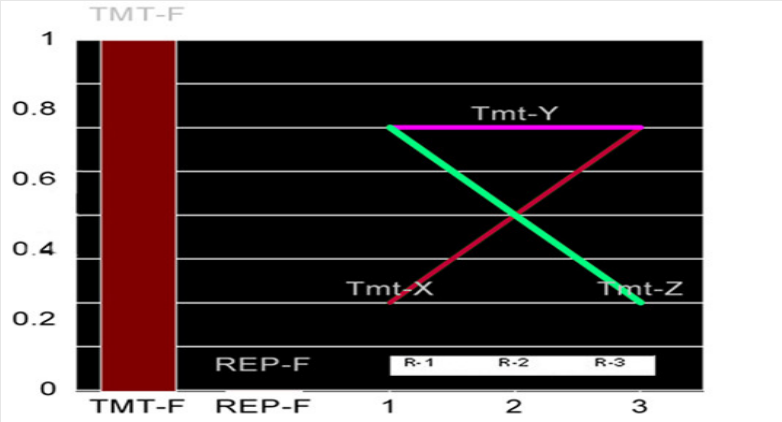
Refer often to the following figures which illustrate the relationship between F values and treatment covariance across blocks)



F-All Treatments Vary Across Blocks. **Note that both treatment and block F values are very large and significant differences would be at a very highly significant level, p(F) <0.001. Covariance exists among treatment pairs.**



F-One Treatment Varies Across Blocks. **Note that treatment F is greater than one and potentially significant, while block F is exactly one and never significant, p(F)=1 (100%).**



F-Opposing Trends Across Blocks. **Note that treatment effects cancel giving an F value of one, and for blocks an F value of zero indicates complete interaction of treatment values with blocks. The case of negative covariance is not suitable for the RB design. In such a case, the ratio of average covariance to variance for t treatments will be negative to a maximum of a negative one.**

You may wonder if there could be such a thing as a three dimensional set of blocks, or if the two dimensional set we normally consider could be subject to a three dimension vector. I'll leave this to the reader to ponder, but couldn't resist embedding this stunning video as a way of visualizing replicated data sets with color representing a uniform gradient effect:

Click here for presentation

These relationships will be set in mathematically precise terms and proved in the following sections of this paper. Traditionally, significance for a randomized block design is judged by F, the ratio of variation in a set of observations, the mean square, to the residual variation, the error mean square. An F ratio of only one indicates that the numerator variation is the same as the error term, so no real difference exists, associated probability, p(F), then being 100% that there is no real difference among means (the initial null hypothesis being that there is no difference). Any differences among treatment or replication means would be no greater than that predicted by random variation. For F ratios greater than 1 there is increasingly less than a 100% chance that means differ by chance alone, because the differences are larger than overall variation. It may seem a quirk that an F ratio of zero is obtained when any positive treatment effect in one treatment is offset by the negative effect in another; hence, a negative correlation (covariance) between those two treatments. It is no accident that an F ratio approaching infinity is matched by a Foos coefficient of covariance of one, and that an F value of one represents a coefficient of covariance of zero.

The theorem states that any such differences among replications (an F ratio larger than one) would be accountable only by covariance among treatments from one block to the next. Take the simplest case of two treatments. If treatments in the second replication are consistently greater than in the first, then one should find covariance among treatments associated with a replication F ratio greater than one. For treatments more than two, the covariance is the sum of all possible combinations among them. Perfectly uniform covariance produces F ratios approaching infinity for

both replications and treatments. This is because all variation occurs due to these effects, and error mean squares progressively diminished by block differences will approach zero. The proof derives a formula for BMS (block mean square) in such terms by breaking out the covariance component to show that the F value for BMS is larger than one only for the sum of individual treatment variances across replications that exceed zero. The error term thus excludes covariance effects of treatment pairs from block to block.

Interesting deductions follow from this idea. Random, i.e. inconsistent, variation among replications will produce treatment covariances of zero. Random variation will therefore remain in the error term, so F for replications will be one, the largest F ratio permitted given randomized block assumptions. Obviously, because of the need to combine covariances for all treatment combinations, negative covariance is not workable (this is equivalent to treatment interaction with blocks). This leads to logical errors. An example of negative covariance would be an instance where additions of fertilizer increase yields for some treatments in one replication but decrease them for the next. This is a possibility, but it would violate the assumptions for blocks in an RB design. Good practice foresees such effects and designs a factorial experiment that avoids these kind of trends. Perfectly opposing curvatures across replications, meaning perfectly negative covariance among two treatments, results in replication F ratios of zero and treatment F ratios of one; therefore, such interactions are not appropriate for good experimental results.

In an example, if moisture caused half of the treatments to increase and the other half to decrease, all the variation would be attributed to a significant factorial effect between moisture and fertilizer, and no block differences would result. If the moisture gradient intersected blocks at a zero angle such that only the ends of each block were affected, then the resulting block to block variation would also be zero, and no block efficiency would result (but, possibly, distortion in treatment effects could result). Thirdly, if only random variation occurs between blocks (BMS=EMS or no gradient exists), then again no reduction in the EMS occurs (except by averaging distortion by using repeated random replications), and the practice of blocking is of no value.

The following proof follows standard induction criteria for k treatments =2 and k + 1 treatments = 3. In order to make the concept work, the notation for individual treatments across blocks is retained by giving each treatment a separate designation of x, y, z... rather than the subscript of t ordinarily used to reference treatment values (and where j indicates blocks). Two and then three treatments are used for the proof according to standard induction criteria, the permutation of larger numbers being difficult to work with. By using these designations, mean square formulas can be rearranged to produce individual treatment variances isolated across instead of within replications for rearranging covariance formulas in pairs between them. The result of each case is that replication mean square can be written in terms of the sum of all possible treatment covariance terms (as shorthand here designated as xy) and sum of individual treatment variances throughout replications, the ratio for which varies between zero and one as the orientation of blocks changes from parallel to perpendicular to the gradient. The proof demonstrates that small values of covariance fail to give significance for blocks, and that zero values always give F ratios of 1; therefore, significant variation is entirely derived from covariance between treatment pairs, the value of which can be calculated by subtracting EMS from BMS and dividing the result by the sum of treatment cross block sigmas. This newly

introduced parameter of r indicates the fraction of block to block variation attributable to covariance; let p(F) give the associated probability for r.

Let us approach the derivation from the simplest examples. There are three possible ways that treatments can vary in combination across replications (aside from the case in which none of them do). Let us take the case in which only one treatment varies as shown in the above graph (for these examples, refer carefully to the three matching charts above... in this case where F=1). However this is done for one treatment across blocks, replication differences remain the same as in the error term, F is one, and there is neither significance for replications nor covariance between any two treatment pairs. In fact, because the only increase in replication error (BMS) over error mean square derives from covariance, this is the only possible result. Note that for the purposes of this proof, (sample) “covariance” is defined as the sum of the product of deviations from each across-block treatment mean (sum of squares) divided by the number of replications less one (number of replication degrees of freedom). The average covariance is the total of such combinations as derived then divided by the number of treatment pairs.

Finally, take the case of near uniform trends across replications. Replication mean square is the sum of both single treatment variations and positive covariance. Perfect uniformity cannot be demonstrated adequately with the traditional ANOVA because a positive covariance and an error mean square (EMS) of zero produce significant F ratios approaching infinity. Opposing trends across blocks will violate traditional assumptions for randomized block designs and be difficult to demonstrate for more than two treatments in terms of an r value as results for some pairs would tend to cancel others. This is the instance of negative correlation, significant when approached as a regression problem, but such an effect will be masked in a blocked ANOVA. It may produce non-significant treatment F values between zero and one, but zero F values for blocks. If the effect is exactly opposite to the first treatment, then the two treatment variances are exactly equal to twice their absolute covariance, but the covariance is now negative in sign for F=0 and a randomized block r value of -1 (see equations later).

If you have no formal exposure (coursework) to inferential statistics and advanced algebra, you should not attempt to understand the following proof. For the sake of those who have a non professional background in statistics (meaning upper level coursework with good grades), this brief refresher is offered. The general formula for variance, is the sum of the squared deviations between observations of x and the mean of x divided by n, the number of observations. In practice, we usually have only a sample population, so we use n-1 instead of n in the denominator. This is called the degrees of freedom. The formula is written using summation notation as the sum, as i goes from 1 to n, of the squared differences between each i element of x and the mean of x, divided by n-1 DF. If we have an experiment with r replications or blocks, then we can reference the sum of the ith elements for each jth set, as follows, to represent the grand mean square, GMS. This is usually referred to as the total mean square, but we want to reserve the symbol TMS for treatments. The grand (total) mean square, GMS, is thus the grand sum of squares, GSS divided by rt-1 degrees of freedom:

$$GMS = \frac{\sum_{j=1}^{r}\sum_{i=1}^{t}(\bar{x} - x_{ji})^2}{rt - 1}$$

Pardon my dyslexia, the sum for i elements should come before the j since alphabetical order prevails in the absence of any mathematical meaning. The number of observations is r blocks times t treatments less one for DF in the denominator for a total mean square. Now, it practice this is a tedious calculation. It turns out that the same formula can be represented by the sum of squared observations less the correction factor, CF, which is the square of the sum of all observations divided by the number of them, n, or in this case rt, like this, where the numerator is called the sum of squares, in this case GSS:

$$GMS = \frac{\sum_{j=1}^{r}\sum_{i=1}^{t}(x_{ji})^2 - \frac{\left(\sum_{j=1}^{r}\sum_{i=1}^{t}x_{ji}\right)^2}{rt}}{rt - 1}$$

However, for this proof, we will use BMS, the block mean square. Any replicated set of data within the total set of observations follows the same pattern, whether it be treatment (TMS). The mean square is the sum of squares divided by DF degrees freedom. The sum of squares for replicated sets, here BSS, is the sum of squared sets of observations

for all sets, divided by the number of observations in each set, less CF. CF is always the same, the number of all observations squared (divided by the grand total number of observations. It's easier to understand the following algebraic expression. If you can quickly grasp or already know the meaning of the following formula for BMS and can write the counterpart for TMS (treatment mean square), then you will be able to trace and understand the proof. Note that we only have r-1 degrees freedom for blocks and t-1 for treatments, not rt-1:

$$BMS = \frac{\dfrac{\sum_{j=1}^{r}\left(\sum_{i=1}^{t} x_{ji}\right)^2}{t} - \dfrac{\left(\sum_{j=1}^{r}\sum_{i=1}^{t} x_{ji}\right)^2}{rt}}{r-1}$$

Now, we are ready to prove that BMS is only greater than EMS, and statistically different, by virtue of covariance of treatment pairs from replication to replication. We then extract the formula for covariance same can be done for any replicated data set, including TMS for treatments, and should be done. We will explore the reasons for that. It may be a good thing to add that the theory of statistics has flaws, the vague assumptions of randomized blocks being only one of them, though perhaps the most glaring. Nor am I the best statistician with the most comprehensive knowledge. It just turns out that after intensive exposure and use of conventional ANOVA in my MS thesis, that I was able to perceive this important improvement in the procedure that also makes ANOVA in general far easier to understand. Having much practice in the use of mathematics for solving problems grants the ability to labor through the complicated algebra and present it the most understandable fashion. So enjoy.

Section 4. Part 1 of 4: Inductive Mathematical Proof, Block Mean Square Composed of Treatment Covariance Using k=2 Treatments.

Parts 1 and 2 prove that block mean square (BMS) is composed of covariance among treatment pairs and were completed spring, 1978, in pencil. Induction requires proof for k=2 and k=2+1; hence Part 2. Part 3 proves that p(F) is 100% (F=1) when there is no covariance (or that F=<1 applies to negative correlation). Part 4 (Section 7) proves that the ratio of covariance among treatment pairs to the variance of single treatments varies from zero to one as F varies from one to infinity, and that this new parameter discovered as a result of the proof, which may be called the r value or Foos coefficient of covariance for replicated data sets, depends on block orientation to an extraneous gradient. It may also be used to assess sampling error in treatments or separate factors in a factorial design.

Equation 4.1 Block Mean Square Defined Using Sums of Two Treatments.

Equation 4.1 below is a slightly different form of the standard textbook formula for BMS shown above, where t is the number of treatments and r is the number of replications, not to be confused with the FCC, Foos coefficient of covariance, also called an r value, yet to be derived. Treatment cells are usually designated as x (sub ij, meaning the ith treatment and jth block), but here, instead of x observations sub i, each treatment has its own symbol: x, y, etc. instead of x sub i. In the following equation, the sum of r blocks is broken down into the two respective treatments x and y for j to r blocks instead of x sub i to t, so that covariance terms between x, y... treatment pairs can be isolated and rearranged after expansion of the squared expressions. Refer to the prior paragraph if this isn't quickly grasped.

Recall that BMS, block mean square or block variance, is BSS, block sum of squares divided by r-1 degrees of freedom for blocks, where BSS, like any sum of squares, is the sum of squared differences between block means and overall mean. In practice, any SS, sum of squares, is better calculated as the sum of squared observations less the CF, correction factor, CF being the sum of all observations squared divided by the number of observations, n = r*t. For blocks, the BSS is calculated as the sum of squares of block totals divided by t treatment cells less CF, and BMS is BSS divided by r-1 degrees of freedom, as so:

$$BMS = \sum_{j=1}^{r} \frac{(x_j + y_j)^2}{t(r-1)} - \frac{\left(\sum_{j=1}^{r}(x_j + y_j)\right)^2}{rt(r-1)}$$

$$BMS = \frac{1}{t(r-1)}\left[\sum_{j=1}^{r} x_j^2 + 2\sum_{j=1}^{r} x_j y_j + r\sum_{j=1}^{r} y_j^2 - \frac{\left(\sum_{j=1}^{r} x_j + \sum_{j=1}^{r} y_j\right)^2}{r}\right]$$

Equation 4.3 **Expansion of Second Square.**

$$= \frac{1}{rt(r-1)}\left[r\sum_{j=1}^{r} x_j^2 + 2r\sum_{j=1}^{r} x_j y_j + r\sum_{j=1}^{r} y_j^2\right] - \left[\left(\sum_{j=1}^{r} x_j\right)^2 + \left(\sum_{j=1}^{r} y_j\right)^2 + 2\sum_{j=1}^{r} x_j \sum_{j=1}^{r} y_j\right]$$

Equation 4.4 **Group Terms Into Individual Variance and Covariance.**

$$= \frac{1}{t}\left[\left(\frac{r\sum_{j=1}^{r} x_j^2 - \left(\sum_{j=1}^{r} x_j\right)^2}{r(r-1)}\right) + \left(\frac{r\sum_{j=1}^{r} y_j^2 - \left(\sum_{j=1}^{r} y_j\right)^2}{r(r-1)}\right) + \left(\frac{2r\sum_{j=1}^{r} x_j y_j - 2\sum_{j=1}^{r} x_j \sum_{j=1}^{r} y_j}{r(r-1)}\right)\right]$$

Equation 4.5 Move r To Numerator As Fraction To Complete Defined Forms. (multiply top and bottom by r)

$$= \frac{1}{t}\left[\frac{\sum_{j=1}^{r} x_j^2 - \frac{\left(\sum_{j=1}^{r} x_j\right)^2}{r}}{(r-1)} + \frac{\sum_{j=1}^{r} y_j^2 - \frac{\left(\sum_{j=1}^{r} y_j\right)^2}{r}}{(r-1)} + 2\frac{\sum_{j=1}^{r} x_j y_j - \frac{\sum_{j=1}^{r} x_j \sum_{j=1}^{r} y_j}{r}}{(r-1)}\right]$$

Equation 4.6 Replace Expressions With Variance and Covariance Symbols.

$$BMS = \frac{\left(S^2 x_j + S^2 y_j + 2S x_j y_j\right)}{t}$$

Equation 4.7 Block Mean Square in Terms of Sum of Variances for t Treatments and the Sum of Covariances for n=1 to C Combinations of Treatment Pairs. We can use the Binomial Coefficient to calculate the number of treatment pairs from t treatments, and write that as the combination, C, of t treatments taken two at a time, as follows.

$$BMS = \frac{\sum_{i=1}^{t} S_i^2 (\text{Sum Tmt Variances Across Blocks}) + 2\sum_{n=1}^{C_2^t} S_{xy} (\text{Twice Sum Covariances of Tmt Pairs})}{t \text{ Number Of Treatments}}$$

Or. the most concise mathematical form for Equation 7.4...

$$BMS = \frac{\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2{}^t} S_{xy}}{t}$$

Section 5. Part 2 of 2: Inductive Proof, Block Mean Square is Composed of Treatment Covariance When k=2 and k+1=3 Treatments.

Equation 5.1 Block Mean Square (BMS) Defined Using Three Treatments x, y and z for r blocks.

Parts 1 and 2 to prove that block mean square (BMS) is composed of covariance among treatment pairs were completed spring, 1978, in pencil. Induction requires proof for k=2 and k=2+1. Part 3 proves that p(F) is 100% (F=1) when there is no covariance. Part 4 proves that the ratio of covariance among treatment pairs to the variance of single treatments varies from zero to one as F varies from one to infinity, and that this value, called the Foos r value or coefficient of covariance, depends on block orientation to an extraneous gradient. Thus, BMS is composed of cross replication variance less covariance among treatment pairs for all number of treatments.

$$BMS = \sum_{j=1}^{r} \frac{(x_j + y_j + z_j)^2}{t(r-1)} - \frac{\left[\sum_{j=1}^{r} (x_j + y_j + z_j)\right]^2}{rt(r-1)}$$

Equation 5.2 Expansion of First Square Yields...

$$BMS = \frac{1}{t(r-1)}\left[\left[\sum_{j=1}^{r} x_j^2 + 2\sum_{j=1}^{r} x_j y_j + \sum_{j=1}^{r} y_j^2 + 2\sum_{j=1}^{r} x_j z_j + \sum_{j=1}^{r} z_j^2 + 2\sum_{j=1}^{r} y_j z_j\right] - \left(\frac{\sum_{j=1}^{r} x_j + \sum_{j=1}^{r} y_j + \sum_{j=1}^{r} z_j}{r}\right)^2\right]$$

Equation 5.3 Expansion of Second Square.

$$= \frac{1}{rt(r-1)}\left[\left[r\sum_{j=1}^{r} x_j^2 + 2r\sum_{j=1}^{r} x_j y_j + r\sum_{j=1}^{r} y_j^2 + 2r\sum_{j=1}^{r} x_j z_j + r\sum_{j=1}^{r} z_j^2 + 2r\sum_{j=1}^{r} y_j z_j\right], cont...\right.$$
$$\left. - \left[\left(\sum_{j=1}^{r} x_j\right)^2 + \left(\sum_{j=1}^{r} y_j\right)^2 + \left(\sum_{j=1}^{r} z_j\right)^2 + 2\sum_{j=1}^{r} x_j \sum_{j=1}^{r} y_j + 2\sum_{j=1}^{r} x_j \sum_{j-1}^{r} z_j + 2\sum_{j=1}^{r} y_j \sum_{j=1}^{r} z_j\right]\right]$$

Equation 5.4 **Group Terms Into Expressions for Treatment Variances and Covariances.**

$$= \frac{1}{rt(r-1)}\left[\left(r\sum_{j=1}^{r}x_j^2-\left(\sum_{j=1}^{r}x_j\right)^2\right)+\left(r\sum_{j=1}^{r}y_j^2-\left(\sum_{j=1}^{r}y_j\right)^2\right)+\left(r\sum_{j=1}^{r}z_j^2-\left(\sum_{j=1}^{r}z_j\right)^2\right)\right], cont\ldots$$

$$-\frac{1}{rt(r-1)}\left[\left(2r\sum_{j=1}^{r}x_jy_j-2\sum_{j=1}^{r}x_j\sum_{j=1}^{r}y_j\right)+\left(2r\sum_{j=1}^{r}x_jz_j-2\sum_{j=1}^{r}x_j\sum_{j=1}^{r}z_j\right)+\left(2r\sum_{j=1}^{r}y_jz_j-2\sum_{j=1}^{r}y_j\sum_{j=1}^{r}z_j\right)\right]$$

Equation 5.5 **Move r(r-1) Portion of Denominator to Inner Parentheses (multiply top/bottom by r(r-1)).**

$$= \frac{1}{t}\left[\left(\frac{r\sum_{j=1}^{r}x_j^2-\left(\sum_{j=1}^{r}x_j\right)^2}{r(r-1)}\right)+\left(\frac{r\sum_{j=1}^{r}y_j^2-\left(\sum_{j=1}^{r}y_j\right)^2}{r(r-1)}\right)+\left(\frac{r\sum_{j=1}^{r}z_j^2-\left(\sum_{j=1}^{r}z_j\right)^2}{r(r-1)}\right)\right], cont\ldots$$

$$-\frac{1}{t}\left[\left(\frac{2r\sum_{j=1}^{r}x_jy_j-2\sum_{j=1}^{r}x_j\sum_{j=1}^{r}y_j}{r(r-1)}\right)+\left(\frac{2r\sum_{j=1}^{r}x_jz_j-2\sum_{j=1}^{r}x_j\sum_{j=1}^{r}z_j}{r(r-1)}\right)+\left(\frac{2r\sum_{j=1}^{r}y_jz_j-2\sum_{j=1}^{r}y_j\sum_{j=1}^{r}z_j}{r(r-1)}\right)\right]$$

Equation 5.6 Move r From Denominator to Numerator Fraction to Yield Expressions in Terms of Cross Block Treatment Variance and Covariance (multiply top and bottom).

$$= \frac{1}{t}\left[\frac{\sum_{j=1}^{r} x_j^2 - \frac{\left(\sum_{j=1}^{r} x_j\right)^2}{r}}{(r-1)} + \frac{\sum_{j=1}^{r} y_j^2 - \frac{\left(\sum_{j=1}^{r} y_j\right)^2}{r}}{(r-1)} + \frac{\sum_{j=1}^{r} z_j^2 - \frac{\left(\sum_{j=1}^{r} z_j\right)^2}{r}}{(r-1)} + 2\frac{\sum_{j=1}^{r} x_j y_j - \frac{\sum_{j=1}^{r} x_j \sum_{j=1}^{r} y_j}{r}}{(r-1)}, \text{cont...}\right.$$

$$\left. + 2\frac{\sum_{j=1}^{r} x_j z_j - \frac{\sum_{j=1}^{r} x_j \sum_{j=1}^{r} z_j}{r}}{(r-1)} + 2\frac{\sum_{j=1}^{r} y_j z_j - \frac{\sum_{j=1}^{r} y_j \sum_{j=1}^{r} z_j}{r}}{(r-1)}\right]$$

Equation 5.7. Therefore, Three Treatments Give the Same Result, BMS Is Sum of Treatment Variances Plus Twice Sum of Covariance Pairs for Any Value of t.

Note that for treatment numbers greater than two, the generalized terminology is abbreviated to x and y to represent ALL treatments and treatment pairs. In the subscript for covariance S, S sub xy also implies ALL combinations of treatment pairs no matter how many.

$$BMS = \frac{\left(S^2x_j + S^2y_j + S^2z_j\right) + 2\left(Sx_jy_j + Sx_jz_j + Sy_jz_j\right)}{t}$$

Equation 5.8 Therefore, Covariance Between All Combinations of Treatment Pairs Across Replications Is a Component of Block Mean Square for All Values of t. We can use the Binomial Coefficient to calculate the number of treatment pairs from t treatments, and write that as the combination, C, of t treatments taken two at a time, as follows.

$$BMS = \frac{SUM\ OF\ TREATMENT\ VARIANCES\ + TWICE\ COVARIANCE\ TOTALS}{NUMBER\ OF\ TREATMENTS}$$

$$BMS = \frac{\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2{}^t} S_{xy}}{t}$$

Section 6. Derivation of Error Mean Square in Terms of Covariance Among Treatment Pairs, Proof that F=1 when p(F)=100% and Covariance is Zero.

This third of four parts of the overall proof yielding the Foos coefficient of covariance for any replicated data set was completed in 1992 with MathCad. Equations were too lengthy to present in pencil or ink.

EMS (error mean square) can be broken into the above BMS component and sums of variances for treatments across blocks. The derivation from conventional form for three treatments follows the same pattern as the sum of squares and co variation derivations for BMS in the preceding proof. The expression of EMS in terms of treatment covariance across blocks is necessary for deriving an r value that represents the strength of linear correlation across blocks. The sum of all combinations for treatment variance pairs is for the number, n=1 to C treatments taken 2 at a time (number of treatment pairs). Thus, it will be shown in this section that EMS can be written in terms of treatment variance and covariance across blocks as follows:

$$EMS = \frac{\left(S^2 x_j + S^2 y_j + S^2 z_j\right) - BMS}{t - 1}$$

$$EMS = \frac{\sum_{i=1}^{t} S_i^2 - \frac{\left(\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2^t} S_{xy}\right)}{t}}{(t-1)}$$

Only two treatments are needed for this illustration, having already proved the BMS component for three treatments designated x, y and z. ESS (error sum of squares) refers to the conventional sum of squares formula where EMS = ESS divided by (r-1)(t-1), the number of residual degrees of freedom.

Equation 6.1 Conventional Calculation For Error Sum of Squares.

$$ESS, errorSS, = \left(SS\ total - SS\ treatments - SS\ blocks\right)$$

Equation 6.2 Break Sums of Squares into Treatment Components (NEXT PAGE).

The following equation may be a bit abrupt. The error sum of squares, ESS, is equal to the total sum of squares less the treatment sum of squares and the block sum of squares. Ordinarily, ESS is just written as the sum of x squared observations over both i treatments and j blocks, but for the theorem we write this as the sum of x squared treatment observations over j blocks plus y squared treatment observations over j blocks. The result is the same value, but using x and y instead of just x, we are able to designate which observation matches which treatment, x or y. In the three major brackets below, the first is the usual SS formula using the correction factor; i.e., sum of squared observations less the correction factor, CF, which is the square of the sum of observations divided by the number of them (usually referred to as n, but here we represent n observations as r blocks times t treatments). The second expression is the block sum of squares, BSS, that being the square of the sum of treatments (here x and y only) divided by t number of treatments per block (in expanded form below), and again less the same CF. Finally, the third expression is treatment sum of squares, TSS, which is the sum of squared sums of treatment x for j blocks and squared sum of treatment y for j blocks, divided by r blocks, and again less CF.

This is standard textbook form except that instead of using x with both i and j subscripts, we omit the i and use separate symbols for each treatment, x and y for two treatments. This should be easily understood.

$$ESS = \left[\sum_{j=1}^{r} x_j^2 + \sum_{j=1}^{r} y_j^2 - \frac{\left(\sum_{j=1}^{r}(x_j + y_j)\right)^2}{rt}\right] - \left[\frac{\sum_{j=1}^{r} x^2 + 2\sum_{j=1}^{r} x_j y_j + \sum_{j=1}^{r} y_j^2}{t} - \frac{\left(\sum_{j=1}^{r} x_j + \sum_{j=1}^{r} y_j\right)^2}{rt}\right], cont...$$

$$- \left[\frac{\left(\sum_{j=1}^{r} x_j\right)^2 + \left(\sum_{j=1}^{r} y_j\right)^2}{r} - \frac{\left(\sum_{j=1}^{r} x_j + \sum_{j=1}^{r} y_j\right)^2}{rt}\right]$$

Equation 6.3 **Expand squares.**

$$ESS=$$

$$=\sum_{j=1}^{r} x_j^2+\sum_{j=1}^{r} y_j^2-\frac{\left(\sum_{j=1}^{r} x_j\right)^2}{rt}-\frac{\left(\sum_{j=1}^{r} y_j\right)^2}{rt}-\frac{2\sum_{j=1}^{r} x_j\sum_{j=1}^{r} y_j}{rt}-\frac{\sum_{j=1}^{r} x_j^2}{t}-\frac{\sum_{j=1}^{r} y_j^2}{t}-\frac{2\sum_{j=1}^{r} x_j y_j}{t}+\frac{\left(\sum_{j=1}^{r} x_j\right)^2}{rt}+\frac{\left(\sum_{j=1}^{r} y_j\right)^2}{rt},\text{cont.}$$

$$+\frac{2\sum_{j=1}^{r} x_j\sum_{j=1}^{r} y_j}{rt}-\frac{\left(\sum_{j=1}^{r} x_j\right)^2}{r}-\frac{\left(\sum_{j=1}^{r} y_j\right)^2}{r}+\frac{\left(\sum_{j=1}^{r} x_j\right)^2}{rt}+\frac{\left(\sum_{j=1}^{r} y_j\right)^2}{rt}+\frac{\sum_{j=1}^{r} x_j\sum_{j=1}^{r} y_j}{rt}$$

Note that by careful arrangement of these terms, sums of squares in terms of x and y treatments and covariance between them is isolated, as follows:

Equation 6.4 **Group Into Variance-Covariance Expressions, Divide Num and Den By (r-1)(t-1) to Obtain Error Mean Square.**

$$EMS = \frac{1}{(t-1)}\left(\frac{r\sum_{j=1}^{r}x_j^2-\frac{\left(\sum_{j=1}^{r}x_j\right)^2}{r}}{(r-1)}+\frac{r\sum_{j=1}^{r}y_j^2-\frac{\left(\sum_{j=1}^{r}y_j\right)^2}{r}}{(r-1)}\right), \text{cont...}$$

$$-\frac{\left(\frac{\sum_{j=1}^{r}x_j^2}{t}-\frac{\left(\sum_{j=1}^{r}x_j\right)^2}{rt}+\frac{\sum_{j=1}^{r}y_j^2}{t}-\frac{\left(\sum_{j=1}^{r}y_j\right)^2}{rt}+\frac{2\sum_{j=1}^{r}x_jy_j}{t}-\frac{2\sum_{j=1}^{r}x_j\sum_{j=1}^{r}y_j}{rt}\right)}{(r-1)(t-1)}$$

$$=\frac{S^2{}_{x_j}+S^2{}_{y_j}}{(t-1)}-\frac{1}{t(t-1)}\left[\left(\frac{\sum_{j=1}^{c}x_j^2-\frac{\left(\sum_{j=1}^{c}x_j\right)^2}{r}}{(r-1)}\right)+\left(\frac{\sum_{j=1}^{c}y_j^2-\frac{\left(\sum_{j=1}^{c}y_j\right)^2}{r}}{(r-1)}\right)+2\left(\frac{\sum_{j=1}^{c}x_jy_j-\frac{\sum_{j=1}^{c}x_j\sum_{j=1}^{c}y_j}{r}}{(r-1)}\right)\right]$$

Equation 6.5 Reduce Expression To Conventional Notation.

Note that for treatment numbers greater than two, the generalized terminology is abbreviated to x and y to represent ALL treatments and treatment pairs. In the subscript for covariance S, S sub xy also implies ALL combinations of treatment pairs no matter how many. If you prefer, replaceSxy with Sxy... .

Note that EMS is equal to the sum of cross replication variance less BMS (replication mean square), divided by degrees of freedom for treatments. Do you suspect that it would also be equal to the sum of individual block variances less TMS (treatment mean square) divided by block degrees of freedom? Well worth contemplating during an idle moment.

$$EMS = \frac{S^2_{x_j} + S^2_{y_j} \ldots - \frac{\left(S^2_{x_j} + S^2_{y_j} \ldots + 2Sx_jy_j\right)}{t}}{(t-1)}$$

$$EMS = \frac{\sum_{i=1}^{t} S_i^2 - \frac{\left(\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2{}^t} S_{xy}\right)}{t}}{(t-1)}$$

Equation 6.6 Substituting Equation 8, Section 5 for BMS...

$$EMS = \frac{\sum_{i=1}^{t} S_i^2 - BMS}{(t-1)}$$

To show that without covariance, F for replications cannot be greater than one, rephrase F by substituting these terms for BMS and EMS into the formula:

Equation 6.7 Conclusion: F=1 When Covariance=0.

$$F = \frac{BMS}{EMS} = \frac{(t-1)}{t} \frac{\left(S^2{}_{x_i} + S^2{}_{y_i} + 2S_{x_i y_i}\right)}{S^2{}_{x_i} + S^2{}_{y_i} - \frac{1}{t}\left(S^2{}_{x_i} + S^2{}_{y_i} + 2S_{x_i y_i}\right)}$$

It is seen that the larger covariance is, the greater F will be. But how large can F be whenever covariance is zero? If we allow covariance to approach zero, we find that F approaches a lower limit of one. This is proved by the formula itself. Let covariance be zero, then the above equation becomes:

$$F = \frac{BMS}{EMS} = \frac{(t-1)}{t} \frac{\left(S^2{}_{x_j} + S^2{}_{y_j}\right)}{S^2{}_{x_j} + S^2{}_{y_j} - \frac{1}{t}\left(S^2{}_{x_j} + S^2{}_{y_j}\right)} = \frac{(t-1)\left(S^2{}_{x_j} + S^2{}_{y_j}\right)}{t\left(S^2{}_{x_j} + S^2{}_{y_j}\right) - \left(S^2{}_{x_j} + S^2{}_{y_j}\right)}$$

Factoring yields:

$$F = \frac{(t-1)\left(S^2{}_{x_j} + S^2{}_{y_j}\right)}{(t-1)\left(S^2{}_{x_j} + S^2{}_{y_j}\right)} = 1$$

Therefore, F is exactly one whenever across-block treatment covariance is zero, whatever across block variance may be. So far, the expression for average covariance across blocks (and r value) is not complete. But the sum of treatment combinations can be represented as the average times t times (t-1) divided by 2. In Section 7 we make this substitution in the standard formula for F to illustrate the dependence of F on average covariance among treatment pairs. Using that relationship, we can then express the Foos r value, or Foos coefficient of covariance, as a simple equation in terms of BMS, EMS and treatment cross block variance.

Section 7. Derivation of Covariance and r value (Foos coefficient of covariance) for Treatment Pairs from Equation 6.7.

The r value (fraction of cross-block variation due to covariance among treatment pairs) was completed in January of 2007 using Ventura Publisher. Recall that Sxy always denotes all combinations of treatment pairs, however many beyond x and y, spanning from j=1 to n treatments through j=r blocks. The r value is the ratio of (average) covariance among treatment pairs to the variance of single treatments across blocks. An r value for treatments or separate members of factorials can also be calculated that represents consistency for treatment effects within replications. These values can be used to evaluate bias introduced by extraneous variables, known or unknown, for any replicated data set.

$$F = \frac{BMS}{EMS} = \frac{(t-1)}{t} \frac{\left(S^2{}_{x_j} + S^2{}_{y_j} + 2S_{x_j y_j}\right)}{S^2{}_{x_j} + S^2{}_{y_j} - \frac{1}{t}\left(S^2{}_{x_j} + S^2{}_{y_j} + 2S_{x_j y_j}\right)}$$

Equation 7.1 Extending Equations Per Proofs for BMS and EMS With More Than Two Treatments...

$$F = \frac{BMS}{EMS} = \frac{(t-1)}{t} \frac{\left(\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2^t} S_{xy}\right)}{\sum_{i=1}^{t} S_i^2 - \frac{\left(\sum_{i=1}^{t} S_i^2 + 2\sum_{n=1}^{C_2^t} S_{xy}\right)}{t}}$$

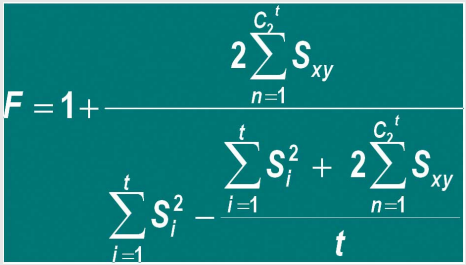
Equation 7.2 Multiplying Numerator and Denominator Expressions

$$F = \frac{t\sum_{i=1}^{t} S_i^2 + 2t\sum_{n=1}^{C_2{}^t} S_{xy} - \sum_{i=1}^{t} S_i^2 - 2\sum_{n=1}^{C_2{}^t} S_{xy}}{t\sum_{i=1}^{t} S_i^2 - \sum_{i=1}^{t} S_i^2 - 2\sum_{n=1}^{C_2{}^t} S_{xy}}$$

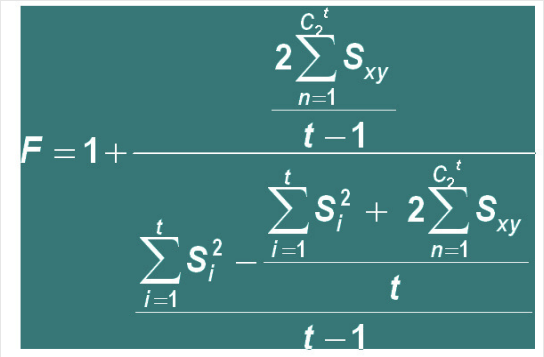
Grouping...

$$F = \frac{\left(t\sum_{i=1}^{t} S_i^2 - \sum_{i=1}^{t} S_i^2 - 2\sum_{n=1}^{C_2{}^t} S_{xy}\right) + 2t\sum_{n=1}^{C_2{}^t} S_{xy}}{\left(t\sum_{i=1}^{t} S_i^2 - \sum_{i=1}^{t} S_i^2 - 2\sum_{n=1}^{C_2{}^t} S_{xy}\right)}$$

By sectioning into separate terms, then dividing numerator and denominator by t...



At this point, you are likely asking what the point of this complicated algebraic juggling is. What we are aiming for is a way of expressing block F in terms of the covariance among treatment pairs from block to block, part so that we can verify that the Foos coefficient of covariance contains the same information as F. Ultimately, we wish to find a way of expressing the fraction of cross block treatment variance in BMS that can be attributed to covariance of treatment pairs from block to block, to be designated the FCC, Foos coefficient of covariance. Dividing both numerator and denominator by t-1...



Equation 7.3 Substitute EMS From Equation 6.5 as Denominator in Equation 7.2.

Note from Equation 6.5 that the greater denominator of the second expression is in fact equal to the error mean square, EMS; therefore.

$$F = 1 + \frac{2\sum_{n=1}^{C_2{}^t} S_{xy}}{\frac{t-1}{EMS}}$$

Next comes an awkward step for the algebraic transition of our proof to the Foos coefficient of covariance, FCC, or r value for replications. We need to substitute the average covariance for treatment pairs (S bar sub xy), where the numerator of that average is the sum of the covariance pairs divided by the number of those pairs, and where the number of pairs is simply t*(t-1)/2. To replace the sum with the above average, we multiply number of combinations as a factor of the average in the numerator. If you have trouble with this, refer back to the basic equations for numbers of combinations and how those are expressed symbolically, then work through the problem carefully. The average covariance is the sum divided by the number of combinations; therefore we replace that by the average times the number of pairs t*(t-1)/2,

$$F = 1 + \frac{\frac{2t\overline{S_{xy}}(t-1)}{(t-1)2}}{EMS}$$

We can now cancel 2 and (t-1) in the upper fraction...

$$F = 1 + \frac{t\overline{S_{xy}}}{EMS}$$

Equation 7.4 Now, calculate the average covariance for any randomized block design as...

$$\overline{S_{xy}} = \frac{EMS(F-1)}{t}, \text{ also, } \overline{S_{xy}} = \frac{BMS - EMS}{t}$$

To derive the Foos coefficient of covariance for randomized blocks (or any replicated data set), or the r value if you prefer, we start with the following definition. See Statistical Methods, Snedecor and Cochran, Seventh Edition, (1980), page 477, for the possibility of using a probability table for the r value. Note that p(r) should be a function of sine theta where theta is the average angle of intersection of blocks with a gradient. All block to block variation will be comprised of "random" plus co variation among treatments, if any. Note that the randomized block r value is the Foos coefficient of covariance as defined here for the first time, it is NOT the coefficient of correlation used in linear regression or between two variables, apologies for misunderstandings leading to that conclusion. It is, however, a similar ratio that suits our purposes for describing block to gradient intersection (or a lack of gradient uniformity). The r value for block covariance is the fraction of (total) variation for treatments across blocks accounted for by covariance between (all combinations of) treatment pairs (average covariance divided by variance). The following expression gives us the average fraction of rep to rep variance of cell (treatment) pairs that consists of covariance of all combinations of pairs between them:

$$r = \frac{\overline{S_{xy}}}{\frac{\sum_{i=1}^{t} S_i^2}{t}}$$

Equation 7.5 Finally, the r Value for Correlations Among All Treatment Pairs Across Blocks, the Average Covariance Across Blocks Is:

$$\overline{r}_{c_2}^{\,t} = \frac{EMS(F-1)}{\sum_{i=1}^{t} S_i^2}$$

The above expression, obtained by substitution from the prior terms for average covariance, is a useful parameter since it tells us that the significance of the F ratio is just as easily expressed in terms of an average coefficient of covariance, not the correlation coefficient between two sets of data, but the average covariance among all combinations of cells for any number of replications. This concludes and encapsulates the point of the theorem, so we give it the following distinctive form to represent a new parameter for all randomized blocks or other replicated data sets, the r value for blocks designated here as r sub rb. Note that whenever F is one, the r value must be zero, though it

isn't necessary or convenient to use the F value in an expression for the r value. Also, it would be better to call the r value r(sub rb) as below to distinguish it from the r value (coefficient of correlation) customarily assigned between only two sets of data (treatments),

$$r_{rb} = \frac{EMS(F-1)}{\sum_{i=1}^{t} S_i^2}$$

Therefore, in a more elegant and finished form, by substitution of BMS/EMS for F, the r value or FCC (Foos coefficient of covariance for replicated data sets) becomes:

$$r_{rb} = \frac{BMS - EMS}{\sum_{i=1}^{t} S_i^2}$$

Note as a matter of casual interest that BMS-EMS, times t number of treatments, is equivalent to the average covariance among treatment pairs. TMS-EMS times r number of blocks is the average covariance among blocks across treatments.

Remember, BMS is for purposes of derivation and concept only. The replicated data set could be treatments (TMS, treatment mean square) instead of blocks, irrespective of any number of blocks including one replication, or they could be either P or K treatments within blocks as in P x K factorial, as long as the design is orthogonal; that is, the same levels of P for each level of K, say four levels of P with three levels of K for each for twelve total treatments. We would then replace BMS with PMS and KMS for the r values for each. For PMS, the sum of cross block variances for each treatment must be replaced by the sum of each variance for each level of P, varP1+varP2+varP3+varP4, and for KMS, var K1-K3. Try to think in reverse, with each treatment set as a block. Therefore, for any data set, the Foos coefficient of covariance is a preferred substitution for F, giving a percentage for consistency of change for all cells in a set of data that is replicated for any reason.

Q.E.D.

It wasn't easy getting here, but we now have a very simple expression that tells us the overall goodness of fit for data cells from replication to replication where affected by either extraneous or intrinsic variables, or in the case of randomized blocks, the ideal orientation of those blocks to an extraneous (nuisance) variable where the r value would be equal to 1. We have also devised a very valuable new parameter which measures the best fit for replicated data sets where influenced by either extraneous or intrinsic variables. It is quite easy to reshuffle terms and obtain an FCC, Foos coefficient of covariance or r value, for all treatments, or subsets of treatments in a factorial design, or for all combinations of cell values among replicated data sets of interest, and not just the conventional coefficient of correlation for a single pair of variables. The FCC r value for blocks can be used to measure consistent change in all treatment values from block to block for a completely randomized design.

We can also define an FCC value for treatments, where the r value for a set of treatment effects measures the consistency in change from treatment to treatment within replications. If this is hard to see, imagine that the set of treatments one through four represent four blocks, and each of three replications may be considered a treatment. The calculation is similar for the same experiment, though instead of BMS in the numerator, use TMS, while the denominator is the sum of each separate block variance. Note that any time an r value for blocks is greater than the r value for treatments, it would be permissible to include the extraneous variable in the overall regression equation for treatment effects. The extraneous variable simply transforms a 4x3 factorial design into a 5x3 design. Note that for 4 levels of N over 3 levels of P, separate r values for N and P can also be easily calculated. The r values for each source can tabulated right along with the F values for a far more understandable parameter. Since the r value contains the same information as F, but also includes the variance of separate cells that cross from one replication to another (even if the source is a treatment effect), it is likely that a separate density function for the Foos coefficient of covariance herein discovered will provide more accurate probability values than F.

Section 8. Examples.

Any ANOVA in the world will do, but we want a simple, if unrealistic, illustration. Assume that we wish to compare gas mileage (mpg) for ten different engine sizes as treatments over a range of driving conditions defined by ten different blocked replications. The most informative and unbiased blocks could be composed of standardized trials done in five different states representing the most varied terrain and traffic conditions. The data collected could be as in the following table:

	Blocks (State)							
Engine	CO	CA	UT	ND	FL	t sum	ts^2/r	t var
1.0	29	31	33	28	28	149	4464	4.6
1.1	24	26	27	29	33	139	3864	11.7
1.2	19	22	24	28	31	124	3075	22.7
1.3	19	23	25	27	30	124	3075	17.2
1.4	18	22	23	25	27	115	2645	11.5
1.5	18	21	22	24	26	111	2464	9.2
1.6	17	19	21	24	25	106	2247	11.2
1.7	16	18	21	23	25	103	2122	13.3
1.8	15	18	19	21	23	96	1843	9.2
1.9	14	17	16	19	21	87	1514	7.3
B sum	189	217	231	248	269	1154	26653	117.9
Bs^2/t	3587	4709	5336	6150	7236	2159		

The column on the far right is the individual treatment variances to be used in the formula for the collective r value derived in this paper. The following standard ANOVA table shows the mean square and F values for the above data set, and in addition the r value. Note that the two values in the above table of 28 and 28 are not consistent with the upward trends in the other nine treatments. If these are changed to 35 and 37, the r value will change from 0.75 to

0.95, indicating the fraction of variation among blocks accountable by co variation among combinations of treatment pairs. The more conventional r ratio using variance cross products in the denominator is included for comparative purposes (in this case, the sum of cross products of all treatment combinations). The conventional r would normally indicate the dependent relation between two sets of observations, and so has no purpose here.

ANOVA						
Source	SS	DF	MS	F	r covariance	r correlation
Total	1132.57	49.00	23.11			
Tmts	661.08	9.00	73.45	25.06		
Blocks	365.95	4.00	91.49	31.21	0.75	0.79
Error	105.54	36.00	2.93			

If the changes in values in the tables from block to block are sufficiently consistent, a maximum r value of 1 is obtainable (with corresponding large values of F), as in the following table of values and the matching ANOVA and r (for randomized blocks) value:

	Blocks (State)							
Engine	CO	CA	UT	ND	FL	t sum	ts^2/r	t var
1.0	29	31	31	25	33	151	4560	9.2
1.1	24	26	26	20	28	124	3075	9.2
1.2	19	21	21	15	23	99	1960	9.2
1.3	19	21	21	15	23	99	1960	9.2
1.4	18	20	20	14	22	94	1767	9.2
1.5	18	20	20	14	22	94	1767	9.2
1.6	17	19	19	13	21	89	1584	9.2
1.7	16	18	18	12	20	84	1411	9.2
1.8	15	17	17	11	19	79	1248	9.2
1.9	14	16	16	10	18	74	1095	9.2
B sum	189	209	209	149	229	987	19483	92.0
Bs^2/t	3587	4385	4385	2232	5262	1823		

ANOVA						
Source	SS	DF	MS	F	r	
Total	1313.62	49.00	26.81			
Tmts	945.62	9.00	105.07	1.04E+15		
Blocks	368.00	4.00	92.00	9.10E+14	1.00	
Error	0.00	36.00	0.00			

A third example demonstrates the possibility of negative covariance, though this violates the assumptions of the randomized block design. An example is restricted to two treatments because additional inverse correlations would tend to cancel. The conventional r in such a case would also have a value of negative one. The following illustrates how perfectly opposing trends in two treatments can result in a theoretical r (for randomized block covariance) value of negative one:

	Blocks (State)							
Engine	CO	CA	UT	ND	FL	t sum	ts^2/r	t var
1.9	10	13	16	19	22	80	1280	22.5
1.0	20	17	14	11	8	70	980	22.5

ANOVA						
Source	SS	DF	MS	F	r	
Total	190.00	9.00	21.11			
Tmts	10.00	1.00	10.00	0.22		
Blocks	0.00	4.00	0.00	0.00	-1.00	
Error	180.00	4.00	45.00			

There may be other uses for the combined r values in randomized block designs. Two of four blocks in a field plot might have originally been set at a 45 degree angle to the other two. Separate r values for the two sets could be used to estimate the magnitude and direction of a moisture or other variable, resulting in the better use of only two of the replications and a more precise layout for future experiments. It might also be possible that once a field gradient can be identified and measured, a regression of the randomized block on the gradient can be used to estimate its affect in other experiments.

Since no experiment is perfect, values of less than one will not necessarily represent a poor orientation of blocks; therefore, the above value of 0.75 more likely represents a 25% error among cell values rather than a 25% deviation in block orientation. Still, values of one do represent a perfect orientation, and, unlike the conventional calculation of the correlation coefficient r for differences between two sets of data, the randomized block r is a valid and natural indicator of the degree to which a gradient affects treatment values in a randomized block design. However, like the conventional r, the randomized block r is a valid measure of the strength of linear correlation of treatment effects from block to block. To illustrate this, we now extend the above example to the block to block variation of the hypothetical extraneous variable associated with or causing it. We will also use the results to calculate a valid regression of gas mileage using the extraneous variable. This need not be linear in practice as long as the appropriate data transformations are used in place of raw data.

It might be tempting to assume that the differences in gas mileage among blocks are due to changes in elevation, because the states used for the experiment differ widely in that respect. This would be a bad example, however, because it would be an inverse relationship poorly suited to regression analysis. Also lacking would be a logical explanation as to why altitude would affect gas mileage. A more likely explanation and one worth testing for our example would be the concentration of oxygen, a value which would change with altitude and have a natural relation to the process of combustion. The following table represents an idealized case with one block value differing slightly to prevent division by zero errors in the ANOVA:

	Blocks (State)		Oxgen Concentration					
Engine	CO	CA	UT	ND	FL	t sum	ts^2/r	t var
1.0	239	267	281	298	319	1404	394468	914.9
1.1	239	267	281	298	319	1404	394468	914.9
1.2	239	267	281	298	319	1404	394468	914.9
1.3	239	267	281	298	319	1404	394468	914.9
1.4	239	267	281	298	319	1404	394468	914.9
1.5	239	267	281	298	319	1404	394468	914.9
1.6	239	267	281	298	319	1404	394468	914.9
1.7	239	267	281	298	319	1404	394468	914.9
1.8	239	267	281	298	319	1404	394468	914.9
1.9	255	267	281	298	319	1420	403280	640.0
B sum	2410	2670	2810	2980	3190	14060	3953447	8873.8
Bs^2/t	580617	712890	789610	888040	1017610	26715		

The following ANOVA table helps explain:

The Foos Coefficient of Covariance for Replicated Data Sets

ANOVA							Regression-mpg on [02]	
Source	SS	DF	MS	F	r COV RB	r CC on 02	Slope	Intercept
Total	35539.20	49.00	725.29					
Tmts	43.80	9.00	4.87	1.00				
Blocks	35320.17	4.00	8830.04	1814	0.99	0.55	0.10	-4.74
Error	175.22	36.00	4.87					

Rows here no longer represent treatments, because, at the elevation for each blocked replication, all the oxygen values should be identical. The “treatment” F value for the corresponding ANOVA is then expected to be non significant at a value of one. Blocks, of course, would be very highly significant, being the only source of variation among cells, except for the one of 255. Note that the value of 0.99 (less than one due to the single cell value of 255), and not the conventional correlation coefficient, gives us an accurate reflection of the fraction of block to block treatment variation owed to covariance and the fact that our orientation of blocks is perpendicular to the gradient.

The conventional value of r as a correlation between mileage and oxygen concentration is compromised by engine size sampling error and yields only 0.55, though this probably significant, we have a useful predictor in the regression formula. We see a near perfect Foos coefficient of covariance for oxygen concentration, close to 100%, so this was a very useful conversion to make. The regression would yet be accurate for any particular engine size if adjusted to include both oxygen and engine size as variables, following the reasoning of this paper that such a procedure is legitimate and desirable. Since oxygen concentration nearly perfectly matches block variation, blocking in this case can be considered nearly 100 efficient in terms of oxygen gradient. The original 0.75 r value being less than 1.00 represents undetermined sampling errors, possibly due to unusual atmospheric conditions during testing, but not a poor orientation of blocks or lack of correlation with oxygen concentration.

The large fertility trial for my thesis work at Montana State University is an example of a serious study funded by commercial interests. Among the treatments, there is one non orthogonal factorial and several paired comparisons. Unfortunately, the raw data were not preserved, so r values cannot be performed on the large number of ANOVA tables for effects of yield and numerous chemical compositions; otherwise, this would have made an excellent set of real life examples for the Foos coefficient of covariance interpretation.

Vaccination Injury ANOVA

The above examples are only hypothetical, not from real research, and as such unrealistic. I've been unable to partner with any university research work for the purpose of integrating the covariance calculations derived from the

randomized block ANOVA design, and the raw data for my NPK experiment at Montana State University disappeared long ago. While waiting, however, I just now, late 2010, ran across a single page table incorporating the complete vaccination records for all three of my children save a third MMR, Hep A and Hep B for my younger son. My professional life was destroyed through numerous illnesses in the family and community arguments over the cause, but this long before I knew anything about autism or toxins in vaccines that had been the focus of debate over damages to children or adults. I'd suspected these things since my own childhood experiences, but never had enough information to draw a conclusion. For years I'd been battling with the medical profession and school system over unprofessional treatment of the children, knowing I was being misled, but unable to make any progress. It wasn't until 2005 that I discovered what was in the vaccines and began looking into both sides of the debate. As good as the mainstream makes it sound, the case for disease prevention by vaccines is very shaky, and a good deal more so if it can be proved that there is a link between vaccines and autism.

If your family members have been repeatedly and severely stricken directly following amalgams or vaccinations, and you're sense of smell is intact, you'll know that denials that such exposures are not dangerous is a blatant lie. The Internet readily exposes numerous other hard cases, and the facade begins to crumble. My coursework in mathematics, chemistry and biology involved countless hours, steady 20 hour marathons and many up to 40 hours at a stretch in a chemistry lab or at a computer terminal crunching results for ANOVA tables and regression formulas. The complete stack of computer green-bar spit from the line printer, containing regressions for my thesis digested from lab and field work, was at least three and possibly six feet high. I poured carefully through each page before making the best choices for inclusion in the thesis, but this was only a tiny fraction of the work that went into gathering data.

As any scientist who does this kind of thing for years can tell you, one acquires the ability to only glance at a set of raw data for a fairly accurate guess at how significant the patterns will be. That the pattern of illnesses in the family were firmly tied to vaccines and amalgams wasn't even worth an argument, but I soon found that the obvious truth would fall on deaf ears, just as the randomized block theorem has so far, though nearly every major university in the world has paid a quiet visit or two to the website. Having no other example, and being that I have the vaccination record and a good recall for these events, I've decided to cast the data into an ANOVA design and calculate the table and FCC r values. Though the numbers are subjectively based, they very adequately represent the 24/7 observations of concerned and well educated parents over 30 years. The ANOVA results reflect hard reality and nothing less. The following table is the identical record as maintained by health providers and the children's mother. The coloring in the treatment cells (dates) indicates the severity of autistic or other neurological symptoms either directly following (MMR) or during the course of treatment (DPT/Polio). A single color block does not mean that symptoms have not increased, but a change in color indicates an abrupt change following that vaccination. All dark red cells indicate both an abrupt worsening of symptoms for that treatment as well as a continuing condition at a level of marked disability. Amalgam symptoms begin mild but increase in the years following, their cause being proved with certainty due to the paired comparison with one or the other parent and identical group of unique symptoms.

	Son 1	Daughter	Son 2
Date Birth	05/24/77	07/13/79	10/16/84
DPT 1/polio	07/22/77	07/13/79	01/17/85
DPT 2/polio	08/23/77	09/18/79	04/12/85
DPT 3/polio	09/23/77	11/14/79	08/08/85
DPT 4/polio	03/21/79	03/28/80	03/03/87
DPT 5/polio	08/12/82	09/04/81	05/03/89
MMR 1	03/21/79	11/12/80	03/03/87
MMR 2	02/09/90	10/29/91	10/29/91
MMR 3			07/07/99
AMALGAM 1	Paired dad	2001	2001
AMALGAM 2	Paired mom	1992-1996	1992-1996

There are unavoidable flaws in using this table for an ANOVA, which will likely meet objections from critics who haven't genuine credentials in both statistical inference (that does include some with degrees in those fields) and over 30 years 24/7 first hand personal involvement in this particular case. First, there is no good way to gather objective numerical data for treatment values (specific toxins) or for dependent effects (mutism, repetitive motions, violent mood swings...). Formal trials could eliminate this problem, but diligent research by either pharmaceutical companies or government funding cannot ever be expected. This is not a requirement of professional ANOVA design, however. The second flaw is that the severity of symptoms cannot be measured directly by any kind of machine or lab test, nor can reliable quantitative estimates be made by outside observers without making daily observations over a full 30 year span. On the other hand, eight years of rigorous academic performance in quantitative sciences demonstrates the ability to make reliable and unbiased estimates. This is particularly true with two parents making daily observations in the same home for more than thirty years. No single shot within the DPT/polio series has a sharp enough effect to draw immediate attention to vaccinations, at least for poor dupes such as we during that time. We were only acutely aware that something was very seriously wrong with our children, more so with each subsequent birth. Since the MMR resulted in immediate and pronounced effects, it eventually became obvious that the source of these very serious effects were lodged primarily in the vaccines, including the milder DPT/polio effects. These were also both given on the same days, so that differences between them could not be determined. Fully orthogonal levels of toxic exposure (treatments) is an excellent feature for ANOVA interactions, but neither necessary nor common, so the industry's vaccination record is adequate for the ANOVA, but not precise regression or covariance analysis. Unlike the sharp effects of the MMR, single DPT and polio vaccinations in a series were never enough to warrant separate treatment, so the approximate effect of a single MMR is spread among the DPT series.

That serious problems did develop during the course of each series, and subsequent damages were clearly linked to later instances of the MMR and amalgams, all of which were clearly observed in several family members concurrently, the inclusion of the entire DPT/polio series as one treatment effect is most appropriate. For establishing correlation, and subsequently cause and effect, there is no need to know what toxins the agents contain or to observe any immediate response. Treatments can then be designated as the bulk of DPT/polio shots as one, each MMR as a separate treatment, and each course of amalgams as another. In this way, we can fit the entire vaccination record for this family into a legitimate five treatment by three replication (each child) ANOVA. The link between morbidity in terms of behaviors or physical symptoms is obvious without this strict, scientific procedure, but we do it anyway to demonstrate the fact that it is dramatically significant and solid proof that the official denials are a shameless lie.

In all seven cases where these three children received the MMR, there were immediate and profound damages, including one involving classical autism and the others including mixed symptoms of autism, PTSD, personality disorder and a range of absurd classifications that medical personnel were wont to discard as readily as they were to snatch new ones out of the air. That similar effects, less pronounced per shot but with about the same cumulative impact, could be matched to the DPT / polio series in all three persons well justifies classifying the series as a single treatment effect. Each MMR would be a separate treatment. The table does not acknowledge that Son 2 was accidentally given a third MMR in 1999. Each set of amalgams comprises another treatment, though one set involved only a few months of visits by one sibling only and the other took about three years with a different sibling. The missing values are replaced with hybrid data from the parents who were treated at the same time and developed identical symptoms following. This is entirely legitimate, since two separate paired comparisons proves that all members of the family were identically affected if not to the same degree. The amalgam effects were distinguishable from the overlapping effects of the MMR because they occurred one or more years later than the MMRs and because the symptoms were identical to the adult family member who hadn't received an MMR shot. In every real sense, the case for severe damage from amalgams is proved in every real sense by the paired observation in the adult, but considerable interaction colors the ANOVA because the effects of vaccines and amalgams cannot be separated and because only only one child was affected in one treatment set and a different child in the other.

Even though there was no way to make precision quantitative measures, the estimates are valid, unbiased and still strong enough to fly off any chart. We were up to our necks in shuck and jive diagnostics and pharmaceuticals for many years at a dear cost to the taxpayer. I was in the middle of every painful moment, and with eight years of quantitative concentration in university science and math, any numbers assigned to reflect the relative severity of vaccine or amalgam effects among family members would reflect nothing less than fair and accurate numerical assignment. Nor are the numbers based on my own observations, but involved major concerns and community disputes at each turn. It is technically true that the strong significance shown in the resulting table is not proof of a cause and effect relationship. Mainstream pundits are quick to sound intelligent by pointing this out, though they quickly dodge the same fallacy when claiming that vaccines are effective in preventing disease and that no such proof has ever been provided. The correlation is, of course, a necessary component of cause and effect. The additional grounds required to prove it amount to the question of whether known toxins in the brew are known to cause chronic poisoning by other means, which they are, while such evidence for the effectiveness of vaccines has never been

adequately demonstrated. Yes, I'm well aware of the bold claims to the contrary, but they do not stand up under close scrutiny.

But I was never the wiser while my family was being thoroughly destroyed by vaccines and amalgams. I later found that the vicious effects of amalgams were known prior to 1840, and about that time the federal government dissolved the existing AMA and ADA, destroying the professions of the majority of competent professionals who knew that amalgams were the cause of serious illness. 160 years later the fraud continues. Ever more desperate to find real answers, and while reviewing the family history overall, I finally noticed unmistakable patterns with amalgams and vaccines by 2005, but by then it was far too late. What follows is the vaccination and amalgam record in ANOVA format, where the severity of symptoms is scaled from zero to 100 next to the dates of exposure. The DPT/Pol shots (6 -8) are grouped into one dated as the first, since one entire set has about the same effect as a single MMR shot. For amalgams, only one child at a time was affected, the other two values are treated as missing with substituted values based on the parent who was treated at the same time and developed matching symptoms. The second son also received a third MMR by accident in July 1999 and abruptly ceased speech as he did after the 1987 and 1991 shots, but there wasn't a complete shutdown until late in 2001 after he received amalgams approximately in June. I had received a full set of new amalgams at the same time, noting the new brassy color caused by increased copper content after 199x. Over the next few years we both suffered from new and increasingly severe effects, including speech and concentration problems, irritability, and for me a nasty assault of urinary blood, kidney cysts and stones. If copper is responsible for calcium deposits in the kidney and prostate, which it is, then it would be little wonder if the same thing occurred in the brain; hence, the claims by many that amalgams gave them MS are most likely true.

The heartbreak of seeing my wonderful young son slip away for the third time, even as we were working together on a project at the high school, is beyond my ability to express. In hindsight, we see the strongly synergistic and far more permanent effect when amalgams were added on top of an MMR. For all practical purposes, I was never able to speak to my son again. This obvious interaction cannot be expressed numerically from the table due to limitations on how treatments were applied. It is discussed in the symptom descriptions below. Generally, the effects of the vaccines wear off from one year to the next, but toxic leakage from the amalgams strongly compounds the effect of vaccines and this kind of poisoning increases in the years following until the amalgams are replaced. It is common for dental "professionals" when forced to admit to the harm being done to advise that the metal fillings not be removed due to the sudden release of more toxin. Do be prepared for a toxic assault after removal and take care to use a dentist who will take precautions and not deny the problem. But don't listen to advice to keep them. Get them out asap. Below is the table of treatments (vaccine or amalgam), dates of application, and estimated severity of effect, where B1-B3 refer to each sibling as block/replication 1 through 3. As in the table it was derived from, a single block of color does not indicate a nonworsening condition, only the lack of abrupt change for that treatment. However, all dark red cells indicate an abrupt worsening of symptoms for that event at a level of marked disability The numbering scheme for amalgams is separate from the vaccines to help appreciate the synergistic interaction with vaccine damage. In two instances a fully functioning and buoyant person abruptly lost personality and became rapidly and permanently disabled shortly following amalgams.

	Son 1	B1	Daughter	B2	Son 2	B3
DPT/POL	07/22/77	50	07/13/79	75	01/17/85	90
MMR 1	03/21/79	70	11/12/80	90	03/03/87	95
MMR 2	02/09/90	80	10/29/91	95	10/29/91	100
AMALGAM 1 Paired dad		30	2001	40	2001	50
AMALGAM 2 Paired mom		50	1992-1996	70	1992-1996	90

The next ANOVA table displays the significance of these well represented effects, which is extremely high; in fact, we're off the charts for ordinary experiments with less than one in 247,000 that these results are due to chance. The difference in effects among siblings is also off the charts at less than one in 10,000. The F ratios from which these probabilities are calculated speak only of raw differences. Unlike the Foos coefficient of covariance, or r value, derived in this paper, they do not provide any feedback on the linear consistency of those differences between replications in the experiment. For the effects of vaccines and amalgams, as seen from the table, the CC (coefficient of covariance or r value) is 93%. What does this mean? We could state it as a question. To what extent are vaccine/amalgam effects consistent from one treatment source to the next averaged among persons who received them? Even if the levels of treatments cannot be precisely measured, a CC of 93% allows us to state with confidence at the same level of probability that all individuals are affected to equal extents excluding extraneous effects. Unfortunately, since the independent variables (toxic levels) are not quantifiable nor incrementally applied, the FCC is not as meaningful as it could be. If it were, we could calculate effects and any interactions with numerical precision.

Source	SS	DF	MS	F	p(F)	Foos Coefficient	
TOTAL	7133	14	510				
TMT (vacc)	4750	4	1188	40	2.47E-05	0.93	Foos r Value
REP (person)	2143	2	1072	36	1.00E-04	0.87	Foos r Value
ERROR	240	8	30				

The Foos coefficient of covariance, FCC, for sibling differences is also very high at 87%, also reflecting a 1/10,000 chance of wrong conclusion. We could state this r value as another question. Are changes in vaccine effects consistent from person to person? In fact, they are at 87%, demonstrating a strong effect independent of vaccines themselves. Since we have such a low probability of error in that conclusion for siblings, we know that there is an extraneous source of major toxic exposure involved other than vaccines or amalgams. Since each subsequent child is affected to

(very) roughly the same degree as the time from one birth to the next, we could rightly suspect that the extraneous variable is placental diffusion. There were no additional vaccinations received by the mother, but there were additional amalgams from time to time throughout these periods. The time scale for toxic effects from one set of amalgams is dramatically apparent from the treatments listed in the tables. Since the identical symptoms became progressively worse over a span of over four years, it is safe to conclude that leakage from amalgams results in progressively higher concentrations in body tissues from year to year, and these metals are known to readily diffuse into the placenta.

Mercury isn't the only culprit. The effects of extra copper added after the early 90s have been well known to cause a strong synergistic effect. Symptoms of copper poisoning are common, including bad temperament and kidney damage. Of course, not every pair of individuals will show the entire range of identical cumulative effects, but they will have a clearly identifiable pattern of shared symptoms. That these patterns were actively avoided by MDs involved in the family, the reality of fraudulent policy in the medical industry and government must be undeniable. While my own family is the only source I have for making up such a tidy table that shows the cause and effect of vaccines/amalgams and autism and related disorders, it is not a rare occurrence. Many thousands of other families have been through the same nightmare while being rebuffed and scoffed at by the medical profession. Some are worse. Among thousands I once monitored on Internet groups, one energetic, vibrant 14 year old girl withered and died shortly after the Gardasil jab. She's not the only one, and government denials notwithstanding, parents have no illusions about the cause or the betrayal . Many others are permanently crippled. Despite the so called scientific hoopla claiming that Gardasil prevents cervical cancer, the fact is that it does nothing of the sort; meanwhile, it was for a time legally required by the Texas legislature, even for boys under the outrageous and false claim that it would prevent penile cancer.

Never expect honest diagnosis or meaningful answers by the medical profession if your child develops such symptoms. We were never told about autism during the first 15 years that our son exhibited classical symptoms despite dozens of meetings and specially arranged tests. It was only apparent to me that the truth was being withheld and questions deflected by a strong projection of pompous reserve. One well meaning high school teacher worked feverishly to prepare a one inch thick compilation of psychology research describing the mystery of elective mutism, dozens of articles which nowhere mentioned the word autism, which these kids definitely were. When autism was first brought to our attention years later, the various medical and school personnel who were supposed to be providing support went so far as to both deny the obvious in one circumstance and admit to it another. Attempts were made to coerce us into clearly bogus and pseudo medical "treatments," claimed to be a cure for such conditions for about $400/month, almost half my salary at the time. I didn't finally gain an overall understanding of the range of autistic symptoms for another five years, including numerous other medical issues, and that thanks only to the Internet. By that time, I myself, then in my late fifties, had developed pronounced symptoms of autism identical to worsening conditions in my already autistic son. This was helpful, because the only possible source for both was amalgams placed in 2001, though we both had more vaccinations together two years prior, one of them being the MRI, after which my son once again quit speaking. There are several treatment protocols that can help or cure victims, aside from avoiding more vaccines or amalgams. Large doses of vitamin B is the best defense, but a multi-pronged strategy is the way to recovery. The following table lists the symptoms my children suffered following the vaccinations and

amalgams that were used to make the above estimates for treatment effects. There can be no doubt based on the very sound observations of many people and the most rigid and honest scientific analysis about the cause...

Symptoms	
	Developmental delay, soft spot won't close, jaw quivering,
	severe sweating, does not respond to physical attention,
	poor eye contact, excessively passive, slow to verbalize
	Extreme hyperactivity, tantrums, fits of screaming rage,
	depression, lack of motivation, drop in social activity,
	drop from school
	Abrupt and severe loss of personality, following amalgam
	placement, extreme shyness, anger, refusal to
	talk, migraine headaches almost daily, severe mood disorder,
	Identical symptoms in family members after getting amalgams,
	abrupt switch from talkative to near total mutism,
	obsession with repeating tasks like opening/closing door
	on tape player, very marked, abrupt loss of development gain
	becoming permanent after 2nd MMR exposure, permanent
	and complete disability after last exposures in two cases
	After amalgams, loss of sleep, irritability daytime but worse
	at night, marked speech dysrhythmia, severe irritability,
	delayed response, speech cadence and rhyming, repetitions,
	darkened urine, kidney cysts and stones, many symptoms
	disappearing one year following removal of amalgams

You may wish to compare the above table with this one (click here). I firmly claim to having never seen the one shown on this site, or any other, until after writing everything else in this section. The above table was based on close and unbiased 24/7 observations for about twenty years. Every MD ever approached in efforts to explain any of the above symptoms was evasive, arrogant and in many cases caught in outright lies. The very plain and severe symptoms of autism in the third child were not properly diagnosed for 16 years.

Of well known examples on autism, Robert F. Kennedy gives credible testimony on the very deliberate coverup by Congress of vaccines being the major cause of autism, but you may have heard that Kennedy's testimony isn't true, that there was no established cause and effect between vaccines and an epidemic of neurological disorders, in particular autism. You'll also hear that there was no secrecy or intentional withholding of that information from the public, only an intent to reconvene for consideration. Well, you can read the Simpsonwood transcripts for yourself and see otherwise. The data clearly show a detailed sequence of symptoms that were all too obvious in my third child, yet for 18 years the medical profession, while obviously knowing the cause, yet lied to us continually. First, an unspecified developmental delay, the at three months of age, tics, six months of age an attention deficit disorder. Exposures at one, three and six months of age cause language and speech delays which are coded differently. Exposure at one, three and six months of age encompasses the entire category of neuro-developmental delays, which includes all of these plus a number of other disorders. "So we are asking people who have done a great job protecting this information up until now, to continue to do that until the time of the ACIP meeting. So to basically consider this embargoed information." Sounds good, but the information was never released by the CDC, so Mr. Kennedy has definitely told the truth when he claims that the government has deliberately withheld the damages of vaccines, if his testimony is at all necessary except for the blind. Then don't stop. Here's a good one, though any real due diligence, with and without peer review, will readily prove that the government has long known that vaccines do cause autism, among even nastier things. But don't stop. Out of a review of 58 journal articles relevant to the link between autism and heavy metals, 15 offer evidence against, but 43 (74%) support a link.

I'll interject an incidental comment on fluoride, being that the pro fluoride literature has for decades been, like vaccines, promulgated in the strongest terms with the air of certain authority. With an intensive background in physiology and chemistry through three years of graduate level research, I can state with certainty that there is no possibility whatsoever that sodium fluoride will prevent tooth decay. That proposal would be no different than the claim that sitting in a tub of nitric acid would increase the ratio of body muscle to fat. It doesn't work that way. No, this isn't what I was told. This issue was never brought up in the academic context, but the notion contrasts sharply with the well understood complexities of physiology and legitimate scientific inference. A good educational site on the real effects of fluoride can be found here.

Meanwhile, examples of extensive fraud in the pharmaceutical industry are easier to verify than genuine advances. In the midst of a general population believing itself to be well informed scientifically by a society saturated in junk food and television, but truly clueless about the rigors of real scientific proof, it is not possible by application of those rigors to not readily demonstrate that the government and pharmaceutical industries are blatantly lying about the vicious damages done by vaccines and amalgams. My own family record proves that beyond any legitimate objection. Bad genetics has nothing to do with it. Anyone and everyone is at risk while the rapid increase autism and other autoimmune disorders is not being accurately disclosed. Given the admission by Mr. Gates that his humanitarian motives are best expressed as population control, and given his partnership with Monsanto and Rockefeller in the seed bank in the era of GMO and the Nazi origins of Big Pharma through I G Farben, then it is most reasonable to expect that most of us will end up being snuffed without the slightest suspicion. In case this works better than

expected, the seed bank in Norway will be insufficient to prevent the worst population reset since the extinction of dinosaurs. Let us hope that Christ's return is indeed imminent.

Andrew Wakefield's findings have been represented as the single study that "needlessly" incited fear in the public conscious over a link to autism and that the results have been heavily publicized as having been exposed as false, not by a researcher, but by a journalist no less who would have had no background enabling him to make such a judgment. None of those claims have been justified or proved, nor have any of the parents involved supported any claim against Wakefield, but that hasn't stemmed the bloodletting. At least 19 earlier papers by Ginger Laundry Lee, all peer reviewed and published, firmly linking the MMR to Crohn's disease and autism, have disappeared from mainstream reference and appear to have been dropped from the public media. Following is a list of other studies that have firmly supported Wakefield's findings:

1. The Journal of Pediatrics November 1999; 135(5):559-63
2. The Journal of Pediatrics 2000; 138(3): 366-372
3. Journal of Clinical Immunology November 2003; 23(6): 504-517
4. Journal of Neuroimmunology 2005
5. Brain, Behavior and Immunity 1993; 7: 97-103
6. Pediatric Neurology 2003; 28(4): 1-3
7. Neuropsychobiology 2005; 51:77-85
8. The Journal of Pediatrics May 2005;146(5):605-10
9. Autism Insights 2009; 1: 1-11
10. Canadian Journal of Gastroenterology February 2009; 23(2): 95-98
11. Annals of Clinical Psychiatry 2009:21(3): 148-161
12. Journal of Child Neurology June 29, 2009; 000:1-6
13. Journal of Autism and Developmental Disorders March 2009;39(3):405-13
14. Medical Hypotheses August 1998;51:133-144.
15. Journal of Child Neurology July 2000; ;15(7):429-35
16. Lancet. 1972;2:883–884.
17. Journal of Autism and Childhood Schizophrenia January-March 1971;1:48-62
18. Journal of Pediatrics March 2001;138:366-372.
19. Molecular Psychiatry 2002;7:375-382.
20. American Journal of Gastroenterolgy April 2004;598-605.
21. Journal of Clinical Immunology November 2003;23:504-517.
22. Neuroimmunology April 2006;173(1-2):126-34.
23. Prog. Neuropsychopharmacol Biol. Psychiatry December 30 2006;30:1472-1477.
24. Clinical Infectious Diseases September 1 2002;35(Suppl 1):S6-S16
25. Applied and Environmental Microbiology, 2004;70(11):6459-6465
26. Journal of Medical Microbiology October 2005;54:987-991
27. Archivos venezolanos de puericultura y pediatría 2006; Vol 69 (1): 19-25.
28. Gastroenterology. 2005:128 (Suppl 2);Abstract-303

Question also arises as to the nature of authority represented by Mr. Bill Gates. True, Mr. Gates has the rightful authority to manage those who work for him by virtue of his wealth, and even as a child had $100 million put in trust for him by his parents. He is undoubtedly expert in many areas in the computer industry. But Mr. Gates has never earned credentials in mathematics, biology or chemistry. Money does not buy that kind of authority or earn the right to speak of those things, it only brings into question the possibility of a conflict of interest. What does earn you the right, which is as much a responsibility, is eight years of intensive labor and personal sacrifice at a recognized institution of higher learning. Another legitimate exercise of that right, granted and not earned, is to have legitimate parental responsibility for the care and well being of children. If the damages to my own children as established beyond legitimate doubt in this document are applicable to the general population, and they are, then we can only conclude that Mr. Gates donation for vaccination has nothing to do with real charity, but that he expects in some way to further build his financial base and influence without regard for any legitimate authority. If you look at the level of casualty in my own family, with several people irreversibly destroyed, the only real winners have been pharmaceutical companies, despite my own efforts to protect them. Shall we bother to check for a conflict of interest by Mr. Gates? Let's just assume that Mr. Gates has a considerably larger investment in Big Pharma stock, and that the recipients of his largesse will end up giving him back everything they ever had or will have, likely through no choice of their own. If the ratio is roughly that in my own family, a billion to charity should yield him about 200 billion from Big Pharma.

While it's easy enough to determine with certainty that vaccines do not prevent disease while they do cause autism and other life destroying disorders, it is easy to see why government and medical studies never show any connection so conveniently. For the current example, take another couple with three children down the block with the same vaccination record, and yet there are no adverse effects. If a study selectively chooses such children, no correlation or cause and effect can be seen. Even if both families are mixed into one ANOVA, which could be called an unbiased study, nothing could be established. If siblings are integrated as one more treatment within a study, however, and the two families arranged as blocks, then not only do vaccines correlated with illness, but a significant difference exists between families. This is the joker card that the government and pharmaceutical industry uses to shield not only the devastating effects of vaccines, but the more fundamentally deep and unbearable horror behind it. What is the difference between such families? What is the invisible extraneous variable that causes one child to become maimed or killed, while another seems unaffected? What has changed during the history of vaccinations to change the rate of autism from 1/10,000 to more than 1/100? Medical science will never find a cause unless it pays the country club dues.

The answer, my friend, isn't blowing in the wind, but you're not likely to hear of it. The correct answer is a microbe, maybe tick borne, often congenital, Lyme disease or similar. Late stage Lyme is not easily diagnosed, and the medical industry has turned its back on causal diagnostics for the green pastures of lucrative sales of psychoactives. of psychoactives to patients who haven't the remaining resources or will to fight back. Is it indeed possible that every MD in the US of A is a crook bent on drugging patients until every dime and drop of blood is forfeit for naught? Actually, that's very nearly the truth. The epidemic of autism is far greater than even that which is publicly acknowledged. It includes most forms of so called mental illness wherever diagnosed, Alzhheimers, autism and many others. Yes, vaccines and amalgams will wreak havoc on those infected with these parasites, and perhaps more than 50% of such children are already infected at birth. You could say that they are congenital Lyme babies, primed for a vaccine "accident," denied and abandoned by the medical profession. They will not likely test positive for Lyme, however, nor will their parents. Neither the tick nor the microbe are probably accepted by the profession as causing Lyme, and even those that are will not likely be tested for the great majority of witless parents.

Has infectious disease been eradicated in the United States as claimed by the "authorities." Hardly. The current epidemic is accelerating with breathtaking and speed and devastation. It's simply being successfully ignored. It is also easily cured, not with backpacks filled with expensive antibiotics, but with mere pennies and no inconvenience.

The Foos Coefficient of Covariance for Replicated Data Sets

Section 9. The Equivalence Principle of Non-Uniformity and Random Error – The Gradius to Find aGradient

This theorem is the only complete explanation of the underlying fundamentals of randomized block design and a means of establishing the characteristics of a gradient. Note that a primary gradient can be broken down into an infinite number of secondary vectors, each with its own direction and magnitude. As a result, a set of blocks fixed parallel to each other will always be perpendicular to some linear vector of the primary when rotated around an equidistant central pivot as long as all lines in the gradient intersect all blocks at the same distance from center. The gradient intersects all blocks equally if to greater or lesser degrees. It would also always have an r value of one barring sampling errors. If a pivot is not centered so as to be equidistant during rotation, the r values for members of cell (treatment) pairs in the set will alternate in a sinusoidal fashion between one (complete covariance) and zero (no block differences). The same is true for pairs where one member of the set is fixed and the other rotated. This is the key to establishing the gradient direction and degree of uniformity in the design stage. Arbitrary scaling can be used to calculate these relationships until the source of the gradient is known, so preliminary plots can be used to find the effective magnitude of the gradient and its influence. That will now be demonstrated.

An r value of one for a set of self parallel blocks indicates only that a primary gradient exists. It says nothing about the direction or magnitude of the major trend. If two preliminary blocks were set at right angles in a gradient, their r value could be anything from one to zero depending on the combined orientation to the primary gradient. The averaged r value for a circular pattern of blocks should then always be zero for pairs of test blocks as one is shifted from zero through 180 degrees from the other. This can be an easy preliminary method of establishing direction and magnitude for any kind of trend. It should, perhaps, be noted that the existence and direction of a gradient is best initially determined by sampling for simple variance, not r values, along the same transects. The largest variance, of course, will indicate the primary gradient, provided the perpendicular variance to that is the smallest. If this is not the case, based on an F or t test, then the value of blocking may be questioned. The smallest variance could be considered the baseline of homogeneity for the field plot. Follow up calculations for r values will give more detailed information on within plot homogeneity and uniformity of extraneous influences.

Values of r less than one can be seen to result from inconsistencies in the orientation of individual blocks that cause cell values within one block to change at a different rate than those in another block. A lack of uniformity in response occurs because one block is intersected by the gradient from a different angle than others and treatment effects then become skewed. Whereas differences in cell values within a block may still be arithmetically uniform from end to end, the degree of those differences will change from block to block, and the value of r will diminish because there is no longer perfect uniformity in the gradient as measured by the r values. Ultimately, uniformity with respect to blocks depends NOT on the existence of a uniform gradient, but that the blocks themselves must be perpendicularly arranged in a consistent fashion to a vector however irregular it might otherwise be. This has far reaching consequences, because “blocks” may consist of elastic dimensions that adhere to a convoluted contour of any kind, even intestine lining or diurnal cycles, uniformity being defined by the relation between blocks and any chosen contours providing measurements that result in a linear influence on treatment effects. Keep in mind, too, that data transformations including interactions between treatment variables and block effects can be used for analysis of this type, so that quadratics, complex interactions, or any combination of other relationships can be identified.

While an r value for a set of blocks parallel to each other will theoretically be greater than zero however placed in a uniform gradient (except for perfectly horizontal to it), it will yet always be zero if there is no gradient. Thus, an easy way to establish if a gradient exists or not is by use of a pair of parallel test blocks. But this provides no other information about the primary gradient (direction of steepest slope) of critical importance to the experiment. R values less than one owing to irregular gradient intersection cannot be distinguished from any other lack of uniformity or random error, but any significant r value (use p(F)), indicates that a trend exists. Significance may be assessed by use of p(F); however, a probability density function for r values is a worthwhile project for further

research. There is, fortunately, a method by which the primary gradient can be measured in terms of both magnitude and direction. That is called the gradient wheel.

The Gradient Wheel (Gradius)

The Equivalence Principle of a Uniform Gradient may also be stated by noting that as far as the r value is concerned for a block of treatment values, there is no practical difference between a lack of gradient uniformity (fully random variation among cells) and a less than consistent perpendicular orientation of blocks to the gradient. Therefore, it is important to test for the presence and influence of a gradient on treatment effects before committing to a final design. The best way to spoof the presence and direction of a gradient is by using a "wheel," where three or more blocks of identical treatments (cells) are arranged in a circular fashion around a common central treatment with equidistant treatment values corresponding to radial transects like spokes in a wheel. This isn't too difficult to do in a geographical space. It can also be done with any kind of temporal or spatial cycle.

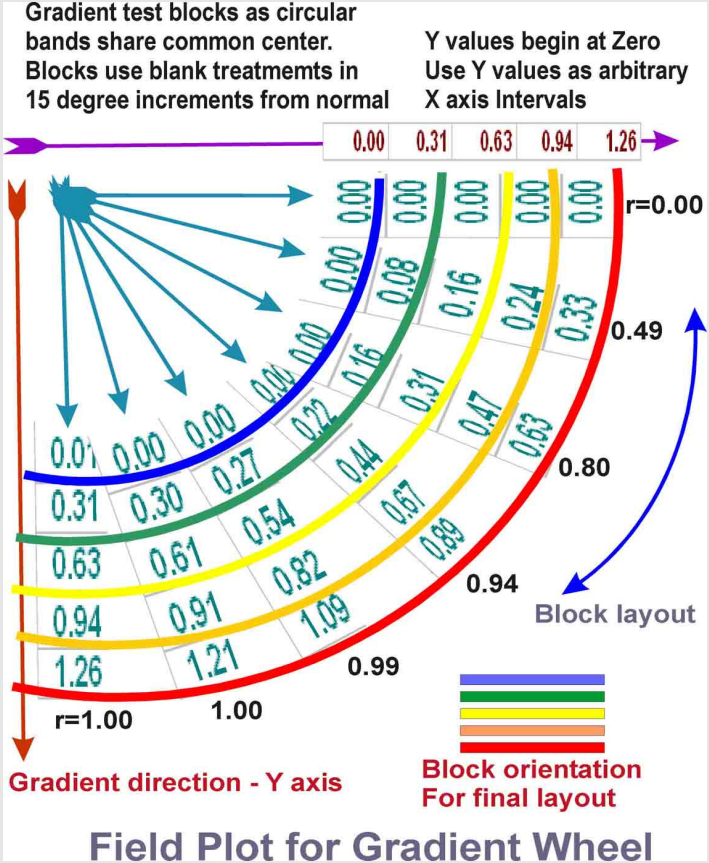
The wheel for finding direction (and influence) of a uniform gradient can be determined by using identical treatment cells in all transects that intersect blocks and where the gradient effect is transformed to ensure that it begins with zero at the center. If there are no differences among treatments in the results, then either there is no gradient or one block is intersecting the other at right angles (r value is zero). Such a block placed at right angles to the first will resolve that question, since the cells would show a progression of effect from one end to the other if an extraneous variable were present and each transect would have slopes that vary depending on the deviation of the second pair from first. If the pair is rotated about the gradient, the r value for any pair of perpendicular blocks will vary between one and negative one at 180 degree intervals as the gradient intersects the second block at corresponding points (provided all transects begin with a zero value from center).

The same thing is true for transect slopes if rescaled. Imagine that the first (reference) transect is always parallel to the gradient and its counterpart, the second of a pair, block is initially superimposed over it, then rotated, much like the hands of a clock. As the second is rotated relative to the first, the r value (and slope of the second member if properly scaled) between them will vary from one to zero at the first right angle, and then to a negative one for each 90 degree rotation and in direct proportion to changes in the slope of the second block. **Slopes and covariance r values will all vary from zero to one** if the slope maximum is rescaled to one and intercepts to zero). These patterns are an excellent check on the assumption of uniformity (or lack of) in the overall experiment. Now we can find both direction and magnitude of any uniform gradient by measuring separate correlation coefficients and slopes for treatment cells in each separate block (regression of treatment cell effects on gradient values). If these cannot be expressed as a function of gradient values (the gradient is not known), distal to proximal positions of the treatment cells in transects with any arbitrary baseline can always be used as placeholders for the unknown gradient values so that the effect of an extraneous variable can always be measured even if the variable is not precisely known.

If a gradient is present in the wheel area, then cell effects in transects should show significant correlation coefficients and regressions where the slopes of the regressions have a clear maximum wherever aligned with the gradient and zero when perpendicular. The slopes and correlation R coefficients will also vary from zero to a maximum in sequence as blocks progressively intersect the gradient at different angles. If the maximum and minimum transect slope values are rescaled to one and zero, then the sequence of those values as one moves around the wheel should, like r values, approximate a sine wave. The slope values will come in handy for measuring effects on treatments in the final experiment. The r values will have associated F values and probabilities, and the significance of those values is the best test for the presence and direction of a uniform gradient. Even if the gradient is not perfectly uniform, such an analysis can provide excellent feedback on uniformity, direction and magnitude of a gradient. If true gradient values are known, a regression can be used to establish the precise influence of the gradient prior to committing to a final experiment. A decision can then also be made as to whether that relationship (or a transformation of adequate fit) can be factored into the final experiment as an extraneous variable of interest.

If the gradient is approximately uniform, a chart of r values for transect pairs can be readily constructed and used to visualize gradient magnitude and direction. Instead of using the y axis to represent a gradient effect, use data transformations to show spectral gradation or shading from one end of each block to the other. The transect most parallel to the primary gradient will show a steep transition, while the others will be progressively less steep around the disk or wheel. The extent to which the gradient is not uniform will be visually evident from deviations in the slopes or r values. If measurements are taken relative to a zero point in the wheel center corresponding to an xy plane, then slopes will vary between a maximum and the negative of the same value. If the centers are transformed to zero and the scaling and range adjusted to match radian increments, then both r values and slopes will show maximums of one and minimums of minus one.

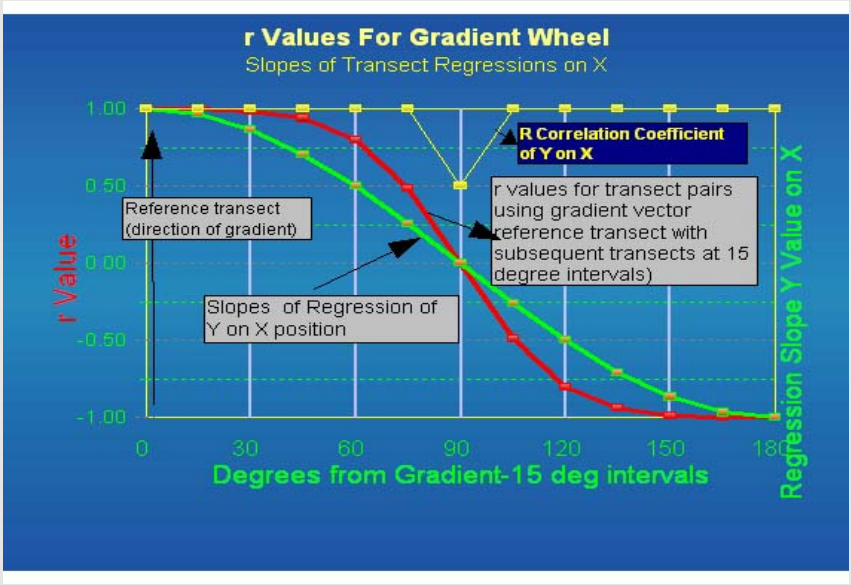
Now we insert a diagram to show how this technique can be used. Only a 90 degree range is necessary. Where a gradient is not yet suspected, this may not work well, because the reference transect must fall on the primary (steepest slope). In practice, 180 degrees should work well, and 360 degrees may be preferable. Keep in mind that the test blocks in the diagram are the thick colored lines that curve from zero to 90 degrees and contain the treatment cells corresponding to values adjusted to match where the corresponding transects intersect from the common zero origin. The Y values (points on the gradient) are scaled to zero at the origin and incremented sine values corresponding to 15 degree increments. The X axis, that is the line perpendicular to the gradient, is scaled identically so that regressions of transects have maximum slopes of one. As difficult as this concept is to grasp at first, with some study it should become understandable. In the diagram, the black r values each correspond to the set of two treatments, the first being the vertical transect that matches the gradient direction and the second the other transect matching a diagonal. Each transect contains the "treatment" cells for five colored blocks arranged radially (this, of course, is NOT a randomized set, as treatment cells are arranged to reflect gradient effects).


Gradient test blocks as circular bands share common center.
Blocks use blank treatmemts in 15 degree increments from normal
Y values begin at Zero
Use Y values as arbitrary X axis Intervals
0.00 0.31 0.63 0.94 1.26
r=0.00
0.49
0.80
0.94
0.99
1.00
r=1.00
Block layout
Gradient direction - Y axis
Block orientation For final layout
Field Plot for Gradient Wheel

It will most helpful to progress through the steps required to arrive at these values. To do that, we will use the same ANOVA technique as in prior examples except that we always use only two treatment sets with the first being zero degrees to the gradient (vertical above). In the table below, the yellow columns represent the normalized "block" data in a gradient wheel. Each transect per row represents a treatment group across blocks. Each row is compared to the first of zero degrees to the gradient for calculating r value, slope, and the correlation R squared for interest. The table is just like those in the example section except that it combines all seven transects and the ANOVA results for the pairs are listed to the right. A regression is also calculated for each pair of treatment sets (the zero angle set always being the first). In this way, the reader can see how the r values and slopes vary as the second member of a set is rotated about the axis. For each such pair, a standard regression is also calculated, the dependent (treatment) variable being the increments on the reference transect, i.e., the one directly in line with the gradient. The table below illustrates the results and corresponds to the same data in the wheel layout diagram above.

		Blocks (distance from center pivot)							
Radians	Angle	Center	2nd Ring	Middle	3rd Ring	Outer	r value	Slope	R sq
From zero	Normal	0.00	0.31	0.63	0.94	1.26	Also used for X axis		
0.00	Zero	0.01	0.31	0.63	0.94	1.26	1.00	1.00	1
0.26	15 deg	0.00	0.30	0.61	0.91	1.21	1.00	0.97	1
0.52	30 deg	0.00	0.27	0.54	0.82	1.09	0.99	0.87	1
0.79	45 deg	0.00	0.22	0.44	0.67	0.89	0.94	0.71	1
1.05	60 deg	0.00	0.16	0.31	0.47	0.63	0.80	0.50	1
1.31	75 deg	0.00	0.08	0.16	0.24	0.33	0.49	0.26	1
1.57	90 deg	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.5

As an example, this quarter circle of transects is sufficient, but at least 180 degrees would be required in the field where the gradient angle is not yet known. In this ideal example, the above figures are easy to extend through 180 degrees and the same values would be mirrored from the first 90 in the negative. The below chart of the r values and matching transect slopes for the ideal case is helpful in visualizing the sinusoidal pattern of both extended through 180 degrees.



Remember that slope values for any transect will vary around the clock, so to speak (refer to the wheel figure), from a maximum (one if scaled) at zero degrees from a gradient to zero at 90 degrees, to a negative maximum (or one), and that covariance r values for any pair of blocks perpendicular to each other will also vary between one and negative one for every 90 degrees that the second member of the pair is rotated through the gradient.

It may seem odd that the two curves do not coincide exactly and that the r value curve seems skewed away from the midpoint. This is because there are in effect two angles represented by each pair of transects extending from the wheel center through the set of blocks where each contains the two proxy "treatments" and each block at two angles of intersection. The x axis for r values applies to only the second treatment set at an angle to the first, the first being fixed

parallel to the gradient (vertically directed in the wheel diagram) for each pair. The average angle of incidence to the gradient is actually the angle bisecting the two transects representing blocks which are used to calculate each r value.

The result is that the effective angle of "incidence" for an r value is the average of a pair of angles, and, therefore, relative to a true sine wave, the curve is skewed towards the extremes of one and negative one. The fact that the two curves are almost, but not quite, superimposed is an arguably fortunate matter, because it can be exploited to give a measure of uniformity for the wheel as a whole (not to be confused with field homogeneity). If a linear regression is performed between these two parameters, the R squared for the relation will be equal to 0.89. Thus, r squared for a regression of several r values plotted against slopes (scaled to a maximum of one) divided by 0.89 yields the relative degree of uniformity for the entire area circumscribed by the test wheel, and the average r value for one half revolution should be a zero. The maximum slope, of course, gives the gradient direction and scaled magnitude. If the gradient identity and true values are measurable, then the true magnitude can also be determined and, if the average probability for matching F values is significant, then the extraneous variable can be considered for inclusion as an independent variable for experimental results.

Do keep in mind that this is an idealized example. In practice, only a much rougher pattern can be expected. Thus, a sinusoidal pattern or significant regression slopes alone have little meaning as measures of plot heterogeneity or for establishing gradients. Whether a background (extraneous) variable can be considered as belonging to a uniform gradient is itself a statistical query and cannot depend on regression slopes alone, but only for further estimating gradient effects after the fact. Heterogeneity from cell to cell and from block to block may be owing to many interacting extraneous variables; therefore, any variable being considered for testing should be most likely to correlate with others, most critically with final treatment effects. In agricultural plots, soil moisture is often the most sensitive indicator of heterogeneity, not that other measures should be avoided if it is expedient for them to be measured. A solution for establishing the initial fact of a gradient would use the same circular grid pattern as suggested for linear regression lines. Using the same grid with lines at equal angles from the midpoint of the proposed experimental center, calculate the sample variance for each line. The smallest sample variance should occur along the direction of minimal variation (heterogeneity), the largest along the greatest heterogeneity to be expected if in line with a gradient. If a gradient does in fact exist, this conclusion can be validated by noting that the largest and smallest variations occur at least roughly at right angles. Then, an F test is used to determine that these two transects do in fact have sufficient differences between them to establish existence of the gradient and the regression results above subsequently used to assign block means for the variable. But even if heterogeneity and homogeneity do not occur at precisely right angles or provide sufficient rationale for inclusion of an extraneous variable in experimental results, it is vitally important that blocked replications be directed at right angles to the direction of greatest variabilityThis assures that treatment effects will not be biased by extraneous influences.

Using the Wheel Configuration for the Final Experiment

This has the advantage of eliminating gradient affects among blocks (average r value equals zero) where gradient affects are not wanted. It has two potential disadvantages. In the preliminary plot, blocks must be laid out perpendicular to an arbitrary center, and end to end in a radial fashion, so a lot of wasted space may result from such

a configuration. The other disadvantage could be that no significant block differences would result and the affect of a gradient would not be measurable, but then this is the advantage where such results mean a less complicated final experiment. In that case the experiment should be treated as a completely randomized and not block experiment since precision would otherwise be lost. It is a more strategic method of eliminating noise than is the completely randomized design and gradient effects should cancel throughout the design.

The Equivalence Principle and a Probability Density Function For r

Let us take each of two cases, first where there is and then where there is not a uniform gradient intersecting blocks. The conventional experiment and resulting ANOVA does not address this issue or provide specific measures of gradient effects, so we can only be aware of a gradient to the extent that blocks are significant. However, an r value of zero corresponds to the null hypothesis probability of 100% (1-r) and a value of one corresponds to a probability of zero (1-r) under the assumption that all variation among blocks is due to gradient influence since no other conditions would allow this. Note also that an r value of zero corresponds to an F value of one with a corresponding p(F) probability of 100% for a null hypothesis, and that as an r value approaches one, the F value approaches infinity with a corresponding p(F) approaching zero.

It is likely true that all other points of the hypothetical probability function for r correspond to p(F) and also sine theta, even if the existence of any theta or gradient cannot be verified directly. Whether any gradient is discernible or not, its presence is betrayed by significant block differences and non-zero values of r. In practice, little may be known about a gradient and no way to distinguish between a lack of perpendicular orientation and seemingly random (non uniform) variation from block to block. Unfortunately, I am not at present able to calculate density functions, so must leave that issue up to those more familiar with them such as Dr. Richard Lund. Until then, any value of the randomized block r that is significantly more than zero but less than one indicates the presence of some degree of distortion in the midst of an otherwise uniform field, and it is fair to say that developing a density function for the randomized block r value would be an interesting endeavor.

For our gradient wheel we could also use two blocks at right angles where both blocks are rotated through 360 degrees. If an extraneous gradient exists, the Foos coefficient of covariance of one will occur at two points during the revolution where the gradient intersects them at the same angle, and the r value will be zero at the two points midway between the values of one. This is exactly what happened in Mr. Grusenick's duplication of the Michelson-Morley interferometer discussed in the next section. The gradient was simple gravity, while the effect being demonstrated is unequal distortion on the mirrors. So, while considering that gravity is a uniform gradient (approximately, anyway) ...

The Universal Law of r Values and the Michelson-Morley Experiment

It is an interesting fact that the r values for cell pairs in adjacent transects (and slopes for transects) is a universal law that can be applied to any set of vectors. The most common example is the rotation of a bar magnet in an electrical

field. The result is the familiar sine wave seen in an oscilloscope for alternating current. Another similar example is the Michelson-Morley interferometer (excellent illustration) used in the famous experiment that most believe validated Einstein's theory of relativity, although the experiment in this case demonstrated that there was no gradient (null result), i.e., ether as a medium for the transmission of light waves. It might be better said that the experiment only verified that the measured velocity of light was independent of any extraneous effect, even gravitational. The firmly entrenched notion that a truly null result was obtained turns out in itself to be a null notion, though that little known fact didn't turn up until two years after this was first written. The results of the experiment are generally reported in textbooks as the comparison of light speed at two 90 degree angles by using an apparatus then already known as the Michelson-Morley Interferometer. Relativity may seem far off topic, but r values in the randomized block covariance theorem can be applied to any set of data where the effect of a gradient is of interest. Let's consider it, then.

For the Michelson-Morley experiment, the "null" results could have been erroneous. If the direction of the ether was perpendicular to the earth instead of a great cosmic wind, then the speed of light would be equal in a 360 degree arc. Beyond that, a fairly large range of oblique intersections as the earth revolves on its axis would likely not give figures outside experimental error unless a statistically significant pattern emerged in the data. This could be done using a version of the gradient wheel with r values and F probabilities. In such a case, the ether gradient would be coincident with gravitation, and effects from the moon and other celestial bodies ought to cause a phase difference during rotation of earth. It was released to the press that none were observed. It turns out, as in other cases, that the real data was withheld from the public and that there were diurnal and seasonal variations. This could confirm the point just made; in fact, later research confirming this was embarrassing to Einstein, who wrote it off as temperature variation. That brought indignant exchanges, but the matter has never been entirely resolved. However, if clock speed is less in a gravitational field, the central point in Einstein's general relativity, there indeed should be fringe shift related to gravitational field. Perhaps this was the secret card up Einstein's sleeve when he doubled his prediction for starlight deflection. Indeed, as we see later, Grusenick's crude replica of the Michelson-Morley interferometer exposes a design flaw such that gravitational effect on the beams would have been hidden by the greater effect of differential strain on the two mirrors. We'll look into that further.

The Michelson-Morley interferometer was used to compare 90 degree pairs (the paths of the two light beams) throughout a 360 degree rotation, similar to the gradient wheel but with both blocks rotating together. A good strategy would be to exploit the theorem to calculate r values for pairs of measurements throughout a 360 degree radius in the spirit of the gradient wheel. If a gradient exists, r values will vary between one and negative one as the second member of a pair of transects is rotated about the first. It turns out that rotating both pairs will work even better, giving a perfect sine wave with two peaks instead of one for every 360 degrees. This is easily seen by applying r values to Grusenick's experiment explained in the next section. For data, we use the sines of both angles that the two beams make with a horizontal plane rather than the fringe shift itself, and note that the troughs/peaks (matching r values of 1/-1) in the fringe shifts coincide with those values. This works because the maximum value of the combined sines coincides with the maximum gravitational effect. If it were not for the fact that the observed effect is stress on the mirrors, we would be demonstrating fringe shift due to gravitational time delay. Is that the cause of the periodic shifts observed in so many of the Michelson-Morley style experiments? Yes and no. Even if they are not owed to

temperature difference as Einstein claimed, the effects observed cannot rule out mirror stress until the design is entirely modified to eliminate the 90 degree asymmetry between the two mirrors when both are opposite and diagonal to a gradient. Otherwise, the effect of slower clock speed at lower gravitational potentials claimed by Einstein is in fact confirmed. ingenuous apparatus if there actually were a difference in the speed of light traveling at different directions through an ether relative to the fixed stars - or not. Admittedly, there appears to be no effect of any gradient on light velocity; however, a conducting medium need not necessarily affect velocity.

Perhaps a three dimensional version of the gradient wheel would be required, or two perpendicular wheels. The hypothetical estimate of the earth's motion through the ether was likely based on bad assumptions of how the ether behaves. If the ether has the characteristics of gas as originally proposed, it is the assumption of this paper that gravitation is itself the manifestation of how these ultra fine particles interact kinetically with their larger atomic progeny, and that the geometry of such an assumption follows the inverse square law precisely. If that were the case, it follows that the motion of a clock would be retarded in the vicinity of a large body of mass, yielding a lower velocity of light due to the higher viscosity. If Newton had considered the phenomenon of redshift combined with the requirement for conservation of momentum, then he could have easily deduced that. Einstein apparently didn't know that either when his special theory was contrived, nor did those who interpreted the Michelson-Morely experiment that he claimed he hadn't heard about. In his general theory, he reverses that position, but still fails to provide a good reason for light velocity being changed by a gravitational field, and this is where a swindle becomes most apparent. To ensure figures within common limits of experimental error, the two interferometer measurements must require precision not likely attainable with a Michelson-Morley apparatus. It should be within the limits of modern technology to build an adequate interferometer for such a measurement, but it would only give specific confirmation to the one vague assertion that Einstein seems to have made, that clocks run more slowly in a gravitational field. The correct answer of why would recover 200 years of scientific darkness and shrink the physics budget, so don't expect it to happen.

A word here for anyone who's been patient enough to get this far. No, I am not a crackpot suffering with personality disorder, motivated by grandiosity, taking aim at relativity to convince the world that I'm a genius. I am simply a very diligent problem solver trying to stay in practice before slipping into the grave, and while taking the journey on this statistics theorem, stumbled on the grave logical inconsistencies of relativity we are exposed to in college. For about two years I only partially understood the scope of these grave errors, because my major was not physics. Despite that, or perhaps because of it, I was nearly successful in fully penetrating and correcting the one key issue which everyone else seems to have stumbled over. If you're an adherent to the relativity religion which still holds real science hostage, go no further. If you're a person who enjoys coming out of the shadows and into the sun, here's the place you can do that. Since my own background lacks the necessary prestige, your first task will be to read most of the physics dissident links at the bottom of the Literature Cited section. This is a gold mine of many of the world's finest and most prominent physicists who share similar objections to the irrational construction of relativity. These are the people you will want to read before anything else. Of those, I strongly encourage you to read Louis Esson's articles with special attention. This man is surely the most reliable and accomplished physicist to ever consider these questions, and you can believe him.

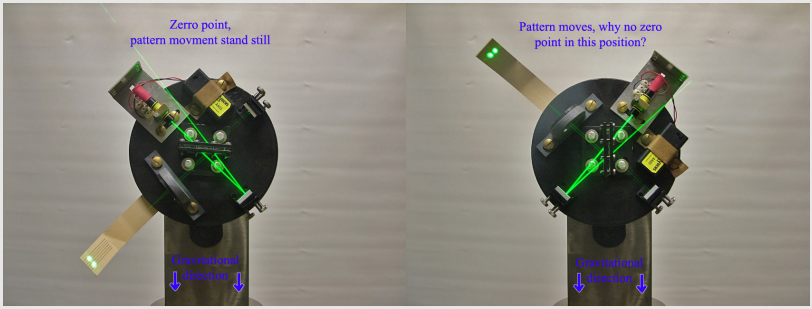
Some claim alternative solutions to various relativity issues or experiments purporting to support relativity. These I don't bother with, because I've managed to do the same in a far simpler and more logical way. As a claim, it may be the ranting of yet another crackpot, but anyone with a serious background who studies the matter should experience the satori. By assuming that gravitation is due to the slowing and thickening of ether particles (as a supergas) from high velocity random collisions with atomic particles, a correction to Newton's KE formula is derived as shown earlier. The expression simply places upper limits on kinetic energy change owing to gravitational potential differences and acceleration due to ether friction. This is very straightforward and easily derived by the simplest rational inference, so don't ask why it hasn't been done before. Large bodies which are in uniform motion relative to each other can be considered at equilibrium with the kinetic flux in that neighborhood of space shared by all others. Of course, there is no such thing as perfect equilibrium. The equations derived from the first assume that clock speed is variable with gravitation where velocity parameters are fixed; therefore, length as a consequence changes with it (dl/dt=1). We should already know this from the modern definition of length being dependent on oscillations of cesium. From those very simple starting points, a non relativistic solution to the Hafele-Keating experiment may be found within five minutes as well as an elegant instinctual grasp of what happens to a beam of light while moving against a gravitational gradient, and exactly how measurements of the velocity of that beam may vary from the standpoint of other gravitational potentials. All related calculations are no more difficult than those found in a freshman physics text. You can then forget about anything else you thought you knew about relativity, go to bed and get a good night's sleep. If you happen to meet Jesus in your dreams, then you've hit the jackpot.

Section 10. Albert In Wonderland: Relative to what?

Grusenick's Michelson-Morley

These and below italics were inserted recently, April 9, 2010: At first I was amazed, please watch the video above as it seems to offer proof of the concept mentioned earlier, but Mr. Grusenick denies conveying the impression that design artifact is not the cause. The gradient he detects may at first seem to be a slower clock speed coincident with a gravitational potential gradient (perpendicular to the earth's surface). Note that moving the interferometer is similar to the Gradient Wheel with the two paths acting as blocks, each with a set of blank treatments intersecting a gradient, but in this case both "blocks" are fixed at 90 degrees to each other and rotated together. Eureka! But, unfortunately, differential stress on the mirrors is the cause of the observed shift, and not clock speed. Nevertheless, we see a fine application of the gradient wheel concept, however unintended, though with both "blocks" or arms of the device rotated instead of one.

The gradient of interest, of course, is vertical, and his results disputed due to misunderstandings about his claim, so we need to confirm whether the orientation of Mr. Grusenick's interferometer matches the pattern of and direction of such a gradient acting on the beams or that the effect is due to differential strain on the mirrors. These two images below represent the crux of this issue, but for his complete presentation check out the subsequent improved design. Also, his youtube presentation (above left) fires the imagination. It is excellent except the suggestion of discovering a new phenomenon. The fringe shifts he illustrates are due to mirror strain as will be explored further, but a better device could detect gravitational time delay. Grusenick's apparatus is a nice, if accidental, example of a gradius.



For all experiments, Mr. Grusenick asks "Why is there a zero point at the one diagonal but NOT for its vertical counterpart?" The question evokes charges of mechanical strain on these blogs from people who thought he implied otherwise, but the phenomenon is also consistent with an external gradient effect on the beams themselves. I started to shake off my initial hopes when there were eleven shifts in one experiment and only two or three in the next. The adjustable portions of the mirror mounts are the cause of Grusenick's fringe shifts. I do believe a statistically oriented design with a far larger path and symmetrical mirror strain would resolve the two effects. I'll email design plans to anyone who wants to tinker with it, but it's hardly worth it to prove what we already know, while the powers that be would ignore it, since an honest reflection bares Einstein's relativity as an artificial construction, a mistake at best, a fraud in harsher light. Is it useful to point out that light itself is a gravitational wave, the only gravitational wave that will ever be found if non-visible frequencies are considered to be em radiation.

The answer is explainable thus - take a good look at these photos for both angles that he presents. The two paths at zero point are NOT equivalent; they are exactly opposite, while the angle that he questions, which is the equal and opposite from vertical, has two paths that are identical rather than opposite, therefore only strain on the mirrors could be the cause of the zero points. The zero point is where one beam travels entirely above the mirror in BOTH directions, while the other part of the split beam travels BELOW the mirror in both directions, consistently at a lower gravitational potential. Why is that a zero point? Because there is a negative 100% correlation (r value) between all points along both paths (since both arms/blocks move at the same time, 100% +/- correlations occur at 180 degree intervals). You can see that in the table below.

Okay then, now, look at the opposite (complementary, where the beam target is exactly 90 degrees from the zero point) angle where there is no zero point, but some people feel that there should be. This is not the equivalent of its complement; rather, here each beam travels the same gravitational gradient, both legs of each beam are below the mirror, so there is no shift in differences between the two paths due to differential stress on the mirrors, but both

mirror stress and gravitational potential differences are exactly equal. The pattern will continue to shift in one direction as the apparatus is rotated, but will change direction at the "zero points," because the greater strain will shift from one mirror to the other only at those points (a negative correlation), and also where one beam or mirror approaches horizontal as the other recedes from it.

The gradient wheel developed in this paper from the derived covariance coefficient will establish the direction and magnitude of a gradient for any kind of experimental design using the same concepts. I take Mr. Grusenick at his word, but only question why he doesn't notice that the zero point angles represent the greatest path change due to opposite mirror strain, with one path above horizontal and the other below, but instead asks why that should be. Indeed, it is clear that the Michelson-Morley design cannot be used for such a purpose. Note that the gradient wheel works by revolving only one of two sample blocks, while the paths in the interferometer rotate together, so care must be taken to match the points to reflect this. An r value of -1 matches the peak negative correlation and zero point in the experiment which occurs twice at 180 degrees opposite, while an r value of +1 matches the peak positive correlation (strain equal on both mirrors), midway between zero points, while an r value of zero corresponds to the point of maximum strain on one mirror and minimum on the other, exactly as the gradient wheel where blocks are at perpendicular and zero orientation to an external gradient. Mr. Grusenick's zero points coincide with r values of negative one which occur twice in his rotation at 45 and 225 degrees where mirror strain is opposite, while the midway angle he questions is where there is equal strain on both mirrors. These are 90 and 270 degrees offset from his zero points. At 45 and 135 degrees offset, there is maximum strain on one mirror and none on the other, one path is vertical and the other horizontal. This is the answer to his own question, where he appears not to understand the mechanics of stress on the mirrors.

The correct interpretation is that a change in direction (zero point) for the shifts can only occur when changes in correlation (maximum differences in path between above and below horizontal) shift from the negative towards the positive and not where they shift together, even though at different rates, after reaching a point of zero stress. Note that when one mirror is horizontal and the other exactly vertical, then there is no gravitational stress on either mirror, the same configuration that Grusenick questions, also at r values of +1. An easier way to visualize this is to simply tabulate the total distance (time lag) traveled between the two paths from horizontal, which can be represented most simply as the sum of the sines of the angles from vertical for both beams. These sine values reflect the degree of gravitational stress or other effect. If this is a gravity effect, due either to mirror stress or "relativistic" time delay, the shifts should change direction at the maximum intervals. At 45 degree intervals, where the angle (of Grusenick's cardboard target) from vertical is given, the table shows the matching r values and vertical path lengths expressed as sine values. It is easy to see the points where a gravitational effect is expected, peaking where the sines are greatest:

r value/Foos coefficient	0	-1	0	1	0	-1	0	1
Angle from vertical	0	45	90	135	180	225	270	315
Delta h/sine 1+ sine 2	1.00	1.41	1.00	0.00	-1.00	-1.41	-1.00	0.00

Note that there are two positions only where a change in direction occurs, at 45 degrees and 225 degrees, exactly where Mr. Grusenick found them and exactly where a maximum negative correlation occurs between stress on the two mirrors or even if due to a path difference or time delay between two elevations. If the mirrors in the apparatus are pointed straight up or down (135 and 315 degrees for the cardboard target), not only are the beam paths equal, but strain in the two mirrors is equal, whereas the zero point angles correspond not only to maximum gravitational beam effect, but also to the point where strain on the mirrors is equal and opposite; therefore, giving an unequal shift in path that reverses after reaching that point. Without bothering to check, the path difference is not large enough to account for any measurable shift by acting on the beam alone as would be the result of a "relativistic" time delay, which is, strictly speaking, not a path difference. I would guess, shooting from the hip, that at least a 50 foot difference would be required, assuming that the lack of symmetry in the device itself is eliminated. Is that hard to do? I don't think so, but differences along gravitational potentials were not an objective for Michelson or Morley.

So, Mr. Grusenick's experiment matches the cycle of positive and negative correlations reflected in differential covariance between the paths of the two beams, whether due to shear stress on the mirrors or ether effect on the beams. If the latter, then it would be the same exact effect that causes the starlight deflection that made Einstein famous (for bogus reasons), so the only mystery would be why modern physics hasn't built an adequate device to measure it sans the Michelson and Morley flaw. There is a time lag for travel through a lower gravitational potential where clocks run a bit more slowly, and the diurnal and other cyclical shifts that Martin Grusenick reports were also seen in the original Michelson-Morley experiment, which also may well turn out to be equipment artifacts. The investigators didn't report those relatively minor results because they didn't want anyone to think that there might be an ether. There's the correct answer, glad I could be here when someone needed me.

Let me EMPHASIZE as before that there is a gravitational effect, though not due to equipment stress and far small for equipment like Mr. Grusenick's to detect. This would be be owed to a time lag for the beam at lower gravitational potential relative to the higher one and show at the same points. The exact lag and matching shift in pattern can be calculated using the same formula I used to calculate the results of the Pound-Rebka experience later in this paper, and using the bastardized "relativity" approach found on Wikipedia will get you to the same place along the wrong path. That is just a slight modification of the same formula derived above for ether viscosity. The same effect is responsible for the starlight diffraction that catapulted Einstein to fame. I won't bother to take the 15 minutes or so to do this, because it is clear that the shift is far too small to be sensed with Mr. Grusenick's equipment, and that the Michelson-Morley design cannot be used since equipment error is too great. People who think Mr. Grusenick has found discovered something new should study the original Michelson-Morley apparatus, which was extremely large and floated in liquid mercury to quench vibration.

There is also debate about Mr. Grusenick's claims to show diurnal and seasonal interference shifts, so let me say a few words. These were also detected by serious investigators not long after and many times since Michelson and Morley, using far more advanced equipment than Grusenick's. These were an embarrassment to the Einstein camp, who claimed them to be caused by temperature fluctuation (hence Mr. Grusenick's extreme care to stabilize temperature in

his experiments). The first laugh is Einstein's own naivette and inconsistency. He was propelled to fame over the starlight deflection escapade, an effect which would definitely cause fringe shifts in the MM interferometer as variably influenced by the position of the moon and other remote bodies, albeit extremely small.

The second laugh is that the MM design is inherently too flawed to give meaningful results, because any effect such as a time delay, whether due to clock speed or Fitzgerald contraction, would put considerable stress on the mirrors in opposing directions, though surely not nearly as large as Mr. Grusenick's using very crude equipment. A different type of interferometer is required where both mirrors are at exactly the same angle to the gravitational vector, but where the path of one beam is directed at a higher gravitational potential than the other. The arms of this device should be at least 50 feet from end to end, but I have not bothered to make any calculations since no one will be building such a thing, anyway.

It is well worth noting that Mr. Grusenick's apparatus and our interpretation of it makes an ideal illustration of the gradient wheel principle described in the last section, with the exception that both "blocks" (arms) of the wheel rotate together instead of just one, and there being two troughs and peaks instead of one per rotation. There could be many design applications that would benefit from this style rather than with the rotation of one block only, and the expected sine values are very easy to relate to the strength and direction of an extraneous gradient, in this case gravity. There is no reason this would not be easier to interpret even for agricultural plots, as long as the same number of replications are used in the design phase and the "moving" blocks are only a matter of measurements of effects between any two rows separated by 90 degrees.

Now, back to 2007...

Let the reader forgive a brief detour from the path of statistical design, but statistical techniques can be useful in all areas of science, even in advanced physics. They may have accounted for any patterns in light velocity as affected by direction had there been any to find and also helpful in plumbing for logical errors in Einstein's theories as they may have depended on interpretations of the Michelson-Morley experiment (thorough account by Wikipedia). Even if c is constant in all directions, there is plenty of reason to postulate the existence of an ether if not defined as the disconnected cosmic wind physicists have conceptualized it must be to fit their own preconceived idea. Here is a good animated illustration of the Michelson-Morley experiment. The big breeze notion could not have been taken seriously, and such an illogical premise being presented as the only possibility would in part explain why Einstein's half baked ideas were seized upon so enthusiastically. The ether can be easily detected and measured in all sorts of ways, if only indirectly (emphasis, indirectly), and not directly by means of velocity, unless gravitational frequency shift is taken as a measurement. The Michelson-Morley experiment was flawed because the equipment design could measure a velocity gradient only by comparing beams after two way trips, leading many to wonder how it could be that the average after return wouldn't be identical, though the theory behind it claimed slightly different paths. Nor did the experiment directly measure light velocity for relative motion, the inference used by Einstein for his second postulate of relativity.

Even a gradient "wheel" would fail to account for an ether with such flawed assumptions, nor should the existence of an ether depend on a priori assumptions of a scientist. And then to our surprise, the non null results of the experiment were denied and withheld from the public. No experiment for such a purpose is of value without a radical revision in the concept of the nature of the substance that propagates light. That is the issue that must be addressed and will be in this section. It may be important as well, that while including a number of links and quotes, all of the critical thinking and concepts about relativity issues were developed before I'd read any such things. Nor have I had but little university training directly in physics, though I was a top student during eight years of very competitive chemistry, biology and mathematics, three of these graduate level. There was never any doubt that I was the best ever when it came to difficult problem solving in these scientific subjects. Relativity hardly qualifies as science, which likely best explains why Einstein rose from obscurity to immortality in 1919 when his prediction of starlight deflection was confirmed by the Eddington expedition, though the data for that, like most, turns out to have been blatantly cooked. Meanwhile, it would seem, alone and unheard, I here present the most straightforward and accurate interpretation of all data so far that purports to have validated the correctness of relativity, and in the prior section on this subject derived the set of equations based on valid rationale that will do the proper job. Those who desire to escape the chains of dogma may read on with interest, particularly the section on Pound-Rebka where these Unified equations are used to confirm the results of that experiment as well as correctly infer the relation between clock speed, gravitation, and all other forms of physical measurement.

Nor will disputing relativity open a closed mind, but having some time of my own during retirement made the idea worthwhile as a way of intellectual enrichment, provided I could learn from it. To make it simple, first dismiss both theories of relativity entirely except for the first fundamental "postulate" that was never in dispute before or after Einstein, and the second, that c is constant for all observers, which must either be abandoned or replaced. The velocity of light is definitely NOT consant for all observers, but this can be restated with a valid second postulate. Then we can construct the necessary conditions for the ether.The first postulate, not contested by anyone, is the fundamental proposition of the special theory, that there is no correct frame of motion with respect to frames of reference moving with uniform velocity with respect to each other. The laws of physics are identical in either frame , and there is no possible way to correctly ascertain that one is moving more or less than the other, only that they are moving in relation to each other. Einstein's use of the Lorentz equations contradicts his own first postulate. The equations given earlier in this paper conform to a revised and logically correct second (Unified) postulate that account for all data erroneously attributed to relativity including the well known deviations from the relativity theory. They are derived from the most basic common sense from an ether resistance to mass. From the same concept Newton's inverse square law can also be readily derived.

How amazing that stark proof of the Einstein fallacy explodes right out of the chute, yet mainstream dogma succeeds in blinding the eyes of the entire world. Einstein's second postulate, that c is constant for all observers in relative motion with respect to the source (or each other), is contrary to both sound logic and good experimental results, unless restricted ONLY to measurements within the frame of reference at a single gravitational potential. Restating a second postulate in that way seems trivial inasmuch as the v+c model conforms to classical Newton as well as common sense.A much better and more relevant second postulate is that time is a variable (coincident with linear dimension) with respect to a gravitational field and that an accelerating (or decelerating) frame of reference

produces the equivalent of a gravitational field. At least acceleration/deceleration is equivalent to one side, or half, of a gravitational field. If the proper conclusions are drawn consistently from this starting point, then the correct answers should follow.

The nature of the ether as a sea of high velocity, random particles should be apparent. Confusion arises due to the use of the Lorentz transformations which make corrections for geometric discrepancies required if the fundamental constant between two "inertial" frames is a constant speed of light. This a priori assumption requires reality to conform to a mathematical framework rather than to observation itself. It requires a universally curved space without any common center and folding in on itself in a way that can be conceptualized only in a mystical fashion. Admittedly, the Lorentz transformations do account (seemingly) for discrepancies in Newtonian predictions between observers, but these only occur when interactions take place between two frames of interest as they must when measurements are made, even for a beam of light. The mathematics do not address those interactions. Kinetic energy, for example, only becomes measurable when two bodies collide, and under such circumstances they are no longer separate inertial frames. One early argument was that the traveling twin paradox first mentioned by Einstein in 1911 was a consequence of uniform motion. Someone in the audience asked if the one twin wasn't younger only because of the effects of acceleration and deceleration, to which Einstein (unwisely?) replied no, it was only due to uniform motion.

Though this argument has been hotly debated and set aside over and over, it is readily apparent that this statement, which forms the basis of the second postulate of relativity, contradicts the first and very sensible postulate of relativity regarding the equivalence of uniform motion (the laws of physics in all inertial frames are identical). This was the crux of Dingle's attack (see Literature Cited section on relativity), while the fallacy was considered to be Dingle's by the mainstream physics culture. If the fallacy were Dingle's, the proof of that has hardly been an easy one or agreed upon among physicists. I think, in defense of Einstein, that it would be a fallacy as long as there is no such thing as true uniform motion, but that some gravitational difference exists between any two frames; hence, once the symmetry is broken, the difference between the two clocks is resolved, and Einstein's example was only a leg puller to illustrate the impossibility of that ideal. That explanation isn't easy to find, however, and others provided in answer to Dingle are most honestly described as highly abstract and complicated fantasies presented as proof in a matter of fact way as to make a critic feel like an idiot.

The real trouble comes about once it can be shown that the overwhelming confirmation of relativity is in fact as much an illusion as the theory of spacetime. In part this is because the circular logic in relativity requires measurements to be altered to fit the constancy of c, and in part because in many if not all cases the experimental data has been clearly altered in a fraudulent way to support SR/GR, and in part because much of the experimental data has been shown by numerous prominent scientists to be better accounted for by vanilla Newton despite the heavily publicized propaganda that Einstein has once again been confirmed. I then challenge anyone to provide an example that purportedly supports Einstein that hasn't been outright disproved or strongly contested by men of unquestioned, strong academic and professional achievement. For those more interested in discovering this for themselves, please do not stop at reading this paper, but enjoy the many references and links, especially those in the Literature Cited section.

Not being a student of advanced physics, the relation between gravitational fields and time constriction never seemed of any practical use for us who are earthbound, but contradictions leap from the page. The Lorentz transformations have been useful in accounting, at least seemingly, for minute differences in observations that somehow weren't predicted by Newtonian mechanics, but all of the measurements based on inferences about relative velocities ought to be explainable by gravitational effects, and this pegs Einstein's major failure to reconcile his two theories and the truth being that general relativity was an awkward attempt to gloss over serious inconsistencies in special relativity where three versions of SR had already failed. The nagging feeling that the illogical overhead of a curved space ought not to be required violates the sensibility that Newton gave us, leaving others to believe that Einstein was paradoxically brilliant but not understandable except in the company of kindred genius, there oddly being no shortage of these days, even in dark alleys, and especially on Youtube.

General relativity, while successfully patching some of the troubles with special relativity, ended up being a far greater fraud and violation of sensibility overall. Instead of providing a rational, straightforward explanation for starlight deflection (time "dilation"), the media sensation attached to this rather minor achievement was used to introduce the "tensor" equations, which the scientific community embraced as embodiment of all the secrets of the universe from intergalactic red shift to the Big Bang. As in the Michelson-Morley experiment, and as in the Lorentz equations, Einstein again claimed no knowledge of Hubble's explanation of the reddened frequencies of distant objects as due to recessional red shift. But this was a transparent lie because the red shifts attributed to universe expansion are not caused by any legitimate Doppler effect, ate least in terms of the unproved expansion of space itself, nor was there ever any adequate evidence to draw such conclusions, rather the tradition of "relativity" has been used to deify the model and continually twist reality to reaffirm it. Science then becomes God, and all reality must confirm and glorify what the imagination of man. A true Shakespearean tragedy.

Observations of "relativistic" effects do not, unfortunately, follow from the constancy of light speed between moving "inertial frames," never satisfactorily defined. Instead, they should require only adjustments following from clock speeds that differ from exposure to gravitational fields of variable strength. The traveling twin paradox is one example where there ought not to be any paradox, and it was never clear how seriously even Einstein took the matter, only that he abandoned such notions long before his followers got word. The man in the audience was correct, any difference in ages would have to be owed to acceleration or other gravitational effects. The only paradox is that the Lorentz transformations, assuming a non-existent ether as used by Einstein, might seem to match observations and Einstein admittedly used such absurdities to illustrate that there was as yet no other way to make calculation for what were more clearly gravitational effects. Another example is the measured lifetime of muons entering the atmosphere. The muon should experience a slower clock rate as it approaches earth, but as measured only from earth, and so muons rightly appear to travel farther than expected to a stationary observer at a fixed gravitational potential. But this does not confirm the Lorentz transformations or require the bending of space-time to explain. Instead, it requires another definition for time where adjustments need be made for measurements made between different gravitational potentials. Translation: clocks run more slowly at lower gravitational potentials, but this is not locally apparent; therefore, all physical measurements between different potentials (or shall we borrow Einstein's word "frame" where it will do some real good) must be adjusted by some other means. The reasoning of relativity must be abandoned in

favor of a rational model and means of calculation. Measurements made of those same events from points at other gravitational potentials will show both clock speed and frequency differences.

Like all other observations that appear to confirm the theory of relativity using Lorentz transformations in space, the constriction of time in gravitational fields that accounts for them (termed time dilation by Einstein) should not violate the fundamental postulates that precede them. Nor should they require that the most fundamental notions about a medium for the transmission of light be discarded simply because the Michelson-Morley experiment gave a null result (which, in fact, it did not, but the less than expected though statistically sound data were withheld from the public). Any observations that differ from predictions of Newtonian mechanics in terms of clock rates can certainly be attributable to an ether that varies in density with respect to ambient gravitational fields if the second postulate of relativity be waived as it must and replaced with one that casts clock speed as a variable with gravitational field strength (not to be confused with gravitational gradient). The Lorentz equations, while neither mathematically correct or physically meaningful to begin with, are not necessary given a way to measure gravitational fields accurately and connect them to the equivalent, observable effects of acceleration. It is at a later time most important to also point out that the "force" of gravity is NOT the same thing as gravitational field or corresponding ether density. The "force" of gravity will diminish for objects below ground level as they approach a planet's center or for objects suspended between two large objects, but the field density of gravity will continue to increase under those conditions, and it is field strength, not "force" of gravity, that really determines clock speed, though ordinary methods for determining field strength do amount to potential differences calculated by means of gravitational constants and differences in height. The correct solution for these calculations requires a meaningful ratio that adjusts kinetic energy differentials and clock speeds that depend on the variable consistency of a background ether. That consistency depends only on the concentration of ambient matter as it partially deflects ether particles in high velocity, random motion.

These are very similar to the macroscale concepts of Brownian motion and viscosity that were the focus of Einstein's earlier academic work. It is odd that he himself failed to grasp their significance on other levels. Take an analogy to a solid particle in a tank of liquid. There is no "ether" direction as far as the particle is concerned, only an omnidirectional bombardment. In some cases, particles may lump together because their neighbors deflect some of them, but under a microscope the collisions are too violent for this effect to be very strong since each molecule collides directly with the particle. For ether, however, the great majority of particles will pass right through an object even as large as the earth, but there are enough of them that the medium itself is somewhat slowed on the interior side with the imbalance between inside and outside giving rise to gravity. The ether medium itself is responsible for transmitting electromagnetic radiation in a way similar to air and water transmission of sound. The difference is that the ether medium is made of charged particles so that the waves follow electromagnetic flux instead of solid matter.

While searching for similar points of view by others, I found those by Dr. Paul Marmet to be particularly well stated and not too dissimilar from my own, while I didn't discover the alleged decades old rant's of Dingle for another three years. But here was Marmet in recent years, also grappling with the underlying inconsistencies of Einstein's Theory of Relativity, which appears to some of us to be an awkward attempt to fit certain observations rather than a logical explanation for them. If scientists of high reputation and remarkable achievement can address such matters, then there is hope, or at least there once was. Several days ago, I wrote Dr. Marmet a letter of appreciation using the

link on his page (15 August, 2007). I scanned his web site briefly, thinking he was just another eccentric. His son wrote back, sending me his father's obituary and an account that aptly demonstrates the death of science as well as a crime committed by those charged with the responsibility of guarding the freedom of scientific inquiry. Let me here do my own awkward best at honoring Dr. Paul Marmet and report what happened to this courageous man of science at the hands of a modern world that has slipped backwards into darkness. The brief version of the obituary is:

Paul Marmet, Ph. D. (1932-2005)

From 1990 to 1999, Paul Marmet was assistant professor in the physics department of the University of Ottawa. He was a senior researcher at the Herzberg Institute of Astrophysics of the National Research Council of Canada, in Ottawa, from 1983 to 1990. From 1967 to 1982, he was director of the laboratory for Atomic and Molecular Physics at Laval University in Québec City. A past president of the Canadian Association of Physicists (1981-1982), he also served as a member of the executive committee of the Atomic Energy Control Board of Canada from 1979 to 1984. Marmet was elected Fellow of the Royal Society of Canada in 1973 and was made an Officer of the Order of Canada in 1981. The Order of Canada is the highest decoration bestowed by the Canadian government.

The account below describes Dr. Marmet's outstanding contributions to the world of science, in particular a sophisticated and useful electron spectrometer that the university powers destroyed because he dared to re-examine the underlying assumptions of relativity...

Marmet and his mentor, Larkin Kerwin, described their pioneer work on this electron source in Citation Classics (Nov. 23, 1987). More than 100 scientific papers (see Literature Cited, relativity subsection) of spectroscopic data and interpretations have been published on this subject. Furthermore, about 200 other papers have been presented in numerous international and national meetings. Between 1978 and 1998, the author also published several other papers related to the fundamental principles in physics. Several of these papers are presented on this web site. In 1997 -99, physicists of the establishment showed fierce disagreement with the fact that Marmet's research implied that the fundamental principles of physics were being questioned. Although the experimental work, which could determine the energy of numerous quantum states was highly appreciated and even honored, the physics establishment required that the author should stop questioning the fundamental principles of physics. The author was first informed by NSERC (Natural Science and Engineering Research Council of Canada) to stop doing that fundamental research despite the fact that, being theoretical, it required no research funds - all research grants were used for the experimental work needed for the electron impact apparatus. Since the fundamental research was still going on the following year, the grant was cut to zero, putting an end to experimental work using the mono energetic electron beams. In May 1999, the head of the physics department came to Marmet's office and said: "*Ce n'est pas ton bureau que nous voulons, ton problème est que tu remets en question les principes fondamentaux de la physique.*" ("We do not want your office, your problem is that you keep questioning the fundamental principles of physics.") Three months later, a letter was sent requiring Marmet's office to become unoccupied before the end of the month. Without research grant and being expelled from his office, Dr. Marmet continued his research alone at home.

This was the irrevocable death of a unique instrument in the world, which was able to measure the electronic structure of negative ions and their ionization efficiency curve using a high resolution monoenergetic electron beam. A few months later, the instrument was destroyed. Also, this shows that physics is not only a science, it is a doctrine. Therefore, there are heretics. It's not different from Galileo's time!

This excursion has taken us far from the topic of randomized blocks, and so for a time was addressed in a separate paper termed the Unified Field, perhaps not so pretentious considering that the approach will account for all of the effects attributed to relativity but within a simple and correct logical framework. The details of any valid unified field

theory can be deduced readily from these revised postulates, at least that is my claim. At issue for me were numerous and genuine flaws in Einstein's reasoning (or as inherited from others as the main tenets in his original paper were not original). And so I set out to correct these, at least for personal satisfaction. At first I thought I'd done a fair job of it, but was unable to find sensible feedback or rational argument. I did discover that the adherents of Einstein and relativity are a rabid and devoted, if self deluded, bunch, so finding common understanding on such an issue is impossible. Most of those interested in this subject are staunch defenders to any indefensible dogma where having a bad premise is a prerequisite for inclusion in discussion; in other words, intellectual frauds, chief among those clearly being Bertrand Russell, although Dr. Russell. If he had posed as a philosopher and not a scientist, it would have been within his rights to spout such nonsense.

The Internet allowed me to confirm long after I had spent three years tilting at relativity on my own, that a fairly good number of articulate PhD physicists had, though to their peril, been pointing out such problems long since 1911 all the way up to yesterday. Most had been successfully suppressed, or, like Dr. Marmet, were shunned, driven out of the profession and stripped of their credits. But their objections were based on valid reasoning and did in fact show relativity to be some kind of a sham. The prevailing notion is that we live in an enlightened age, but men like Galileo fared much better. In reality, modern society lives under a grand delusion in a darkened age of frightening scale hidden by the glitter and proliferation of modern gadgetry. As I've gotten older, I've become more jaded, more acutely aware of the degree to which we have all been deceived and damaged by lies of one kind or another through mainstream media and politics. I should remark that except where specifically pointed out that any of these statements in this section are recent, that they were preliminary to my attempt to straighten out the Einstein hoax, and only three years later did I finally feel completely guilt free in proclaiming relativity the sham that it was and always will be as well as certain of having provided the correct alternatives in all respects.

"15 And he charged them, saying, Take heed, beware of the leaven of the Pharisees, and of the leaven of Herod. 16 And they reasoned among themselves, saying, It is because we have no bread. 17 And when Jesus knew it, he saith unto them, Why reason ye, because ye have no bread? perceive ye not yet, neither understand? have ye your heart yet hardened?"

I do not, however, claim that my solution to relativity is perfect, not that it answers any questions that may be posed about the universe other than the fundamental requirement of physical definitions, clock speed and ether viscosity as adequately explained here for the receptive mind. After struggling through my own attempt to iron out the kinks in relativity, I yet at first was fool enough to accept the seemingly undeniable principle supposedly solidly confirmed by experiment, a constant c, yet I found myself backed into a nasty logical quandary, because a value of c which is constant in all directions irrespective of relative velocities is clearly not consistent with the facts of everyday experience or fair logic as confirmed by the uncontested, as I thought, null results of Michelson and Morley. I would still fall victim to that dogma had I not been entangled by the impossibility after tracing through the facts. The crux of the issue for the yet great unwashed may be what is exactly meant by a constant c and how it came to be inferred, because the Michelson-Morley experiment was meant to detect drift owing to an ether postulated to have a direction, and then was later contradicted by Einstein himself. It did not involve observers in relative motion nor a one way measurement. Nor did the results take into account an ether of different characteristics, nor in the end, it turns out,

were the results even null. The constant c notion was an invention that never fit the facts, while even Einstein interpreted (gravitational?) frequency shift as a measure of light velocity and seems to have changed his mind in the transition to GR. I will maintain that my own substitutions for the theory of relativity resolve all of these issues, where ether velocity and density are coincident with gravitational field strength, though a very small cosmic drift would be detected as the real Michelson-Morley data showed. This is in accord with minor gravitational flux throughout the universe.

Many opinions abound, and Dingle's attacks against SR are most often considered as absurd as his own accusations against SR (McCrea's well known rebuttal with Dingle's answer), but good evidence indicates that my own innocent and uninfluenced conclusion that GR served only as attempt to cover over the fallacious reasoning behind SR has been shared by many. Lest I be accused of being unfair, here is another dismissal of the "fallacious" reasoning of Dingle, but I personally find the logic aimed against Dingle to be evasive, sound reasoning has been upended and the argument against Dingle is exceedingly thin. I can, actually, see how his critics justly accuse him of the most elementary fallacy stemming from a failure to properly understand special relativity. Correcting Dingle, however, also strips SR bare of any practical meaning inasmuch as some connection with reality is generally assumed to be the aim of a scientific theory, and that a few hapless students would be disillusioned. As for SR having any meaning or value, even Einstein had given up on it by 1916, but he never bothered to explicitly inform anyone.

On my own, before ever having heard of such objections, I found no good reason at all for Einstein's rejection of absolute simultaneity, but later continued to encounter those who noted that the relativity of simultaneity came about only because Einstein so defined it. I still have trouble understanding why he made this awkward and unnecessary point, though it was necessary to deny absolutes in order to rationalize the awkward and meaningless use of inertial coordinate systems in order to arrive at the square pegs needed to fit round holes. After reading numerous similar refutations of Dingle, it seems more and more that the main defense of Einstein's theories lie in their failure to say anything about physical reality but rather make reality fit an imaginary model, and despite the legions of those who consider it having been experimentally verified, well, here's Nature's own editorial comment:

"Einstein stressed the tentative nature of his theory and the need for experimental models. Contrary to popular belief, there is no evidence concerning the special theory as propounded, because no experiment has been made in a force-free space." Essen, Nature, 217:19. Nevertheless, most of us have been led by the physics community to believe the opposite, most often quoting the Hafele-Keating experiment which was clearly proven to have been faked, but the relativity boys are armed to provide more examples if pushed. We may never be able to admit to ourselves that the Michelson-Morley data was simply very badly misunderstood. The average of a two way trip may have prevented a positive result, but the experiment did not justify the inference that c would be constant between source and observer. It only proved, if anything, that with respect to the beam itself there was no shift.

This is not in agreement with the Newtonian gravitational redshift proved in the Pound-Rebka experiment, and yet both are considered verification of relativity. Why? The very subtle reason is that the Michelson-Morley experiment demonstrates that no local change in velocity occurs, whatever the direction of any ether, and Lorentz somewhat awkwardly but accurately explained this as having to do with changes in clock speed and length. The beam in the Pound-Rebka experiment was not, however, a matter of local measurement. The frequency shift was measured as the

difference between two gravitational potentials as externally measured and does signify a change in light velocity between those two points. The velocity between those two points as measured by the photon in the course of its travel is still a constant c, because coincident with a reduced velocity is a higher clock speed, hence it sees no net change in velocity. I should note that when I first wrote this section, I had not yet reconciled my own understanding of this very subtle point, but inserted such explanations after the fact in February, 2010.

If we shall grant that the two perpendicular averages of Michelson and Morley are different (though not by much), the null result had been so well established by repeat experiments and so firmly entrenched in the public mind that I myself had never considered the absurd possibility that results might not have been truly null, even knowing that other assertions of relativity were incorrect. But, clinging to the constancy of c, I found it necessary to make Planck's constant a variable (which it actually is between gravitational potentials while not being a local issue). But I had also blotted out the patrolman's gun as a practical violation of a constant c, even where Pound-Rebka showed that a velocity dependent Doppler shift between source and observer corrected a gravitational frequency shift. Suicide might be best unless I could laugh at myself and accept that Einstein and his adherents had perpetrated a shameful artifice with the constancy of c postulate, and had at best demonstrated an incurable human mental defect, a complete collapse of judgment in the face of an appointed authority, especially when exposed to heavy mainstream media fallout. Of course, if clocks tick faster at a higher elevation, then the lower frequency in Pound-Rebka could be offset by a higher clock speed so that a constant c was maintained. But wouldn't the Doppler shift disappear? Not according to the scientists. If you're one of them, do NOT read Einstein's 1905, 1907 or 1910 special relativity papers, where he himself uses light frequency as a measure of velocity and in 1905 makes a major blunder in interpreting a higher frequency (smaller interval) as a slower tick. The answer? The answer is that the constancy of light, c, is preserved only for the photon itself (or any other object) as it passes from one gravitational potential to another.

Having little training in physics other than excellent achievement in overlapping subjects, and knowing very well that the mathematics didn't add up, I started hunting for any objections by PhD physicists who had noticed the same contradictions and would, if not far better at explaining them than myself, at least be more likely to be heard. After all, for me the matter was only intellectual enrichment and the satisfaction of clear mind. One by one, the false logical underpinnings of relativity as I saw them were confirmed, and standard Newtonian principles proved better able to explain the facts if some allowance were made for clock speed as a variable and a more realistic model adopted. I did not, however, find anyone who had been able to point out the one all encompassing explanation that explained any real data with simplicity and unquestioned clarity. I couldn't even quite speak it myself, though I felt that I did know the answer. My satori was held in check until I could find another example or historical fact to nail it down with certainty. I was entirely unaware of the many serious arguments against relativity (now included as links in the Literature Cited section), as well as the extent of creative bookkeeping with experiments claiming to confirm relativity. I only knew that my own instincts proved reliable through eight years of vigorous university math and science. The mean spirited nature of arguments defending Einstein on web forums only confirmed my heartfelt suspicions that there was nothing scientific or correct about relativity. I had to laugh at such things as:

Yes, that's for me, Alan Foos. banned from Hell. Forever! A good sign.

In July 2009, after a series of such vicious arguments with relativity proponents armed with ridicule and one must assume poor academic performance, I set it all aside. I'd found major flaws in everything Einstein had claimed, but was still stymied by the constancy of c argument and unaware of the design flaws and hidden results for the Michelson -Morley experiment. I was hoping for that unexpected new bit of information which would peg the answer more firmly. I thought I had it, but was somehow yet unable to express it with confidence. But many times I'd learned that a simple and direct solution to a difficult problem would come instantly, unexpectedly and only after it had been forgotten for a while. How could c really be constant between source and observer? Then...

The truth emerged in February, 2010, after becoming better informed about the details and depth of Einstein's alleged plagiarisms. When those were matched with the sequence of events between 1905 (SR) and 1916 (GR), I could correctly judge the relativity boondoggle for the cheap hoax it was. Einstein was driven by desire for acclaim and had exploited unusual social conditions as well as his friendship with men like Eddington. By that time I (alone, of course) loved my own paper, having resolved many nasty questions, but the joke was still on me until then. I had been marooned trying to hang on to the one key and yet also false claim of Einstein, the constancy of c between observers. I was suddenly freed by the realization that the constancy of c was valid, but ONLY along the path taken with reference to itself or through a constant gravitational potential. This could be called the lack of internal change in inertia, comparable to free fall where there is no change in velocity with respect to the body in motion itself. While I will stick to the hoax interpretation, I privately believe that Einstein, Poincare and Hilbert simply possessed an arrogance that enabled them to disregard the truth and, in haste lest the opportunity pass, destroy the course of science by an overly complicated and meaningless spacetime construction. All I needed was the truth, and for that only a meaningful physical explanation and matching formula that could properly explain the relationship between gravity, clock speed and frequency. Eureka! Now I had it.

The frequency shift of Pound-Rebka was made at a given point at the upper elevation, but it was NOT local since the differences under consideration spanned two different elevations (gravitational potentials). Any measurement at one elevation that dealt with differences between two elevations was, however close to the source, just as remote as Einstein's "remote frame" of reference he used to describe time "dilation" for starlight deflection. If Einstein had admitted that light speed was reduced, as he did, while a beam was deflected by the sun, then he should have also admitted, which he didn't, that it was also increased by gravitational blueshift on approach and decreased by gravitational redshift after passing the sun. He should have explained that both the frequency shift and clock speed effects would produce an additive refraction, hence twice Soldner's estimate for deflection (that it has been claimed that he had blatantly plagiarized prior), but these same two vectors would instead cancel any velocity changes along the beam's own travel. Either Einstein wasn't smart enough to tell it straight, or he was smart enough to know that telling it straight wouldn't have put him in the scientific hall of fame. He threw us a spacetime curve, all right.

The fix was to simply junk relativity and replace it with a more explicit definition of "local frame" that excluded anything outside the path of an event under consideration. Now I could have intellectual closure with refreshing humility. It finally became evident, even if it should have been initially obvious, that even the constancy of c, even after uncontested verification by Michelson and Morley, turned out in the end to be false unless strictly restricted to a local effect owing to clock speed. This means that a wave front, or common notion of a photon, may gain or lose frequency between source and observer, but any change in velocity owing from that must also be offset due to clock speed change during transmission. Before February 2010, I wasn't bold enough to hold fast to that explanation, but as soon as I knew the more detailed sequence of events leading up to 1916, the deception, even if not intentional, was obvious.

Finding similar objections of reputable physicists should protect me in the exceedingly unlikely event someone should actually read my own paper and see how my one agreement with the physics world so ended in disgrace. Einstein himself, apparently oblivious to the other goofs, had said that if c was not constant in all directions (implying between source and observer), then the claim of relativity would fall apart. A more honest statement is that this was the only worm in the can yet worth keeping if the results of Michelson and Morley, to which Einstein claimed no knowledge, were right. But no one had ever dared voice objection, the experiment being history's most famed experiment. The shame of neither partial nor total defeat could ever be faced. A constant c has never been refutable and it may be another thousand years before science before anyone might safely point out the obvious fact that c is not constant between source and observer, or at least communicate the necessary qualifications for making such a statement.

That Einstein claimed to have no knowledge of the Michelson-Morley experiment strains belief, especially inasmuch as he duplicated the Lorentz formulas in special relativity to arrive at the constancy of c result. Lorentz had himself derived the formula to account for the experiment the year before Einstein, a well known plagiarist, published his 1905 paper, also claiming no knowledge of the Lorentz solution, which turns out to be incorrect by many accounts. While I understand the point of the 1-v^2/c^2 expression for expressing constancy of c from all points of view, I confess that, like many, I have reservations about the design of the experiment, the need for the square root function, and especially the rationale for separate inertial frames and how they are defined, while the relativity of simultaneity and the difference in clock speeds for inertial frames are obviously nonsense, a perception that I was relieved to find shared by a fair number of physicists of well established reputation. Among those, Hans Zweig, a very prominent physicist, voices particularly valid objections to the reasoning behind all of these things, and also adds this:

"Einstein maintained that he developed the Lorentz transformation independently. He does not cite Lorentz in his 1905 paper. It is most curious, therefore, that he made the same mathematical mistake of taking the square root at the same point in the development of the transform as his predecessor."

Then, as fate usually has it, and I'd given up hope, the noose tight on my neck, rescue arrived unexpectedly. First was the dirty little secret that the Michelson-Morley results were in fact not null. Actual data were never publicly published, but simply discarded and not acknowledged. Real patterns had been detected, but were simply not large enough to fit the physicists' pre existing notion of how large they must be to prove an ether assumed to possess irrational properties. As a result, rather than expose smaller minds to trivial details and burden them with the task of considering an alternative, it was simpler to let the world believe that Michelson and Morley and numerous

duplications afterward had found nothing at all. See links listed at the end of the "Literature Cited" section that explain these matters so well. Best of all are 29 papers, apparently compiled by Marmet's son or other sympathizers, that honestly and effectively expose the worst aspects of the relativity farce as the real Big Bang that will someday explode in the face of physics, if only after the current crop has been long dead. Nevertheless, I wouldn't pin either my hopes or fears on the Michelson-Morley outcome, except to say that a frequency shift corresponding to the lunar cycle should have been observed, inasmuch as Pound and Rebka had verified such a gravitational frequency shift. I personally can't see how the Michelson-Morley experiment would detect a gravitational shift, if, as it seems, the return path is identical to the original. But if that is not the case, as the physics world insists, then mild shifts in the real data, undisclosed to the public, would be expected. Either way, conclusions from the Michelson-Morley experiment could not have confirmed relativity.

The second revelation, and final nail in the coffin for relativity, was that very good data had been discovered directly by experiments bouncing radar off nearby planets, that the v+c model for light speed was a decidedly better fit than a constant c (see Wallace, Byron 1994, or better yet, Romer 1676). The physicist who first brought this to the attention of his peers soon found that the original data was no longer available to himself (or anyone), though there was never any question that it existed and could be made publicly available. Efforts to retrieve it were simply ignored (read "The Farce of Physics"). It was then that the true nature of the Big Bang whacked me full in the face. But one should not, as I did, plunge into such a debate ignorant of better minds who have gone before. A must read is that of Herbert Dingle. First, read the Wikipedia biography of Professor Dingle, then do read his short book, Science at the Crossroads. The scientific community rejected his objections to relativity despite his exhaustive efforts to get their attention, while I have simply discharged the foolishness Dingle so well addressed and replaced it with sound reasoning, expecting little to come of it aside from a good deal of personal enrichment.

Mainstream physics, like modern medicine and political institutions, has become only a face saving and self serving myth, another of many dogmas throughout history perpetuated by enlisting the greater mass of fools incapable of critical thought, but which, like murder mysteries or other fanciful fiction, provide good entertainment and funding for more research. Dr. Einstein's convoluted riddle amazes, titillates and transforms the mentally handicapped and poor into the affluent, the brilliant and the esteemed, at least in this life. Astrophysics, however, isn't my bailiwick, for which I thank God. This paper is fundamentally only a refreshingly new, simple and easily verified statistical theorem that could provide reasonable mathematical structure to the sliver of good research today, or even the well hidden results of speed of light experiments such as those of Michelson and Morley - if only they weren't null (another punch line coming). Having gone to the trouble of finding qualified dissent on the matter, the best of these references are included in a separate bibliography section of this paper. For great amusement, watch this, and pity these poor schmucks for what they must do, first to get a grade, and then to keep a job.

$$KE = \frac{Mv^2}{\left[1 - \frac{V_i^2}{c_i^2}\right]}$$

Meanwhile, this formula (above) for kinetic energy in the paper does in fact account with ultimate precision for the anomalous data (in the sense of being contrary to Einstein's formulas) observed by the space lab in Pasadena from the motions of accelerating spacecraft. Do note the similarity to the "Lorentz" expressions improperly adapted by Einstein, but which can be misused to give comparable results. If the denominator is cross multiplied, then it describes the change in kinetic energy from Newton's own, the first term being KE, kinetic energy, less the adjustment of KE times velocity squared over maximum velocity squared. In English, this is only an adjustment for ether drag that only comes into play at velocities approaching the speed of light, except that the speed of light is NOT the permissible speed limit for objects of measurable rest mass. Instead, I refer to this is V sub Aim, or absolute intrinsic maximum velocity. This will vary slightly depending on unique atomic structures; therefore, it accounts for the deviations recorded by the space lab in Pasadena that don't conform in any way to relativity, should that surprise anyone. Also, in this particular sense of gravitation, v in the numerator refers to the velocity of impact after free fall between two elevations, as well as acceleration from an "inertial" frame at zero gravity. Since the distance and clock rate vectors both vary together, measurements between two frames require the (square root of) the same correction factor; thus, it can be easily derived for a change in length or time as follows from Newton's KE equation. When considering effects regarding objects of measurable mass, c must be replaced by the maximum intrinsic velocity for that particular atomic configuration. This means that ether drag on objects undergoing acceleration will vary slightly.

The above expression is the complete and correct form of Newton’s equation for kinetic energy adjusted for ether resistance. Since any other measurement depends on a corresponding change in KE, all physical measurements must correspond to the correction for kinetic energy due to change in gravitational field or acceleration. This then is the universal correction factor for physical measurements of time and distance, where for bodies of mass, c must be replaced with a maximum velocity for that mass,

$$1 - \frac{V_i^2}{c_i^2}$$

Now, a given measured velocity (intrinsic uniform velocity designated with a large V) must remain constant throughout all local "frames" for a given mass and acceleration (fundamental Principle of Constant Velocities), just as the value of c is constant and valid along the local path of a wave front. However, we must be careful to remember that the variables of length and time contained in velocity do change despite the fact that local velocity does not, so changes in distance and clock speed occur in the same ratio. For a given change in velocity in a gravitational field of strength G,

$$V_{G2} = V_{G1}$$

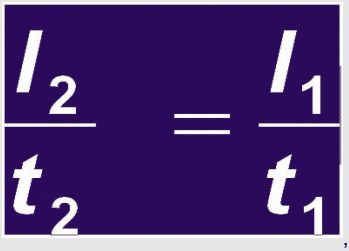
Since linear dimension is the dependent variable that changes as a function of different clock rates at different potentials, but both change together, either clock speed or distance must be held constant at the one potential in order to calculate the difference in the other variable. Therefore, substituting values for length in the two states for non intrinsic velocity change gives us

$$\frac{l_2}{t} = \frac{l_1}{t}\sqrt{\left[1 - \frac{V_i^2}{c^2}\right]}$$

Multiplying each side by t

$$l_2 = l_1\sqrt{\left[1 - \frac{V_i^2}{c^2}\right]}$$

Therefore, the change in clock rate between two states is directly proportional to the change in linear distance. Substituting variables for length and time,



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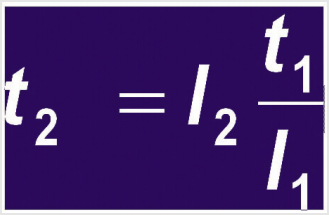
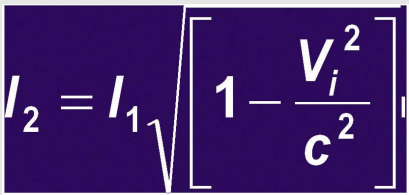


Substituting the former equation for calculating shrinkage in distances in gravitational frames of higher ether density



Then,

$$t_2 = \frac{t_1 l_1 \sqrt{\left[1 - \frac{V_i^2}{c^2}\right]}}{l_1}$$

Canceling gives the value for the slower clock rate (time) in the larger gravitational field.

$$t_2 = t_1 \sqrt{\left[1 - \frac{V_i^2}{c^2}\right]}$$

Stop to consider what this simple algebraic expression is saying. Relating back to our first expression for KE, we state that the change in momentum between two potentials is reduced by ether drag, the fractional loss being KE*V^2/c^2. V does NOT represent a uniform velocity, but the velocity of passive impact for a falling body or traveling wave front. If V were zero, there would be no change in relative velocity, but if the maximum permitted velocity were approached, ether resistance would reduce the change in energy to zero. Another way of looking at it is that further acceleration would require and infinite addition of momentum, mv^2. Now, we look at the above formula for calculating the different elapsed times between the two potentials. Since both time and distance in the KE formula are bound in the variable V^2, we must use the square root of the 1-V^2/c^2 correction factor. In the expression above, t2 is the

elapsed time at the lower potential, while the larger interval t1 must be solved for. But what are we saying in logical terms? We are saying that stronger gravitational fields or accelerations are associated with more dense ether concentrations caused by collisions with matter, and that the reduced ether kinetic activity results in correspondingly reduced clock speeds. In other words, it is ether kinetics that drives gravitation as well as passive molecular motion. Make sense?

Again, for objects of mass, the value of c in these formulas must be replaced with the maximum velocity change for that particular element. Rather than being based on the constancy and upper limit of light velocity, the values predicted in my own original essay assumed an upper limit on inertia due to ether resistance, and that this limit will vary depending on the nuclear composition of the mass being pushed through it. The random, elastic and high-velocity properties of ether most resembles those of an ideal gas, except that ether particles are so fine that matter is almost entirely transparent to it. Matter is visibly unaffected except for the gravitational effect of acceleration or the near equivalent of being shielded on one side by adjacent material. Gravity is only a lopsided push, not a pull. In general, this correction would give values slightly greater than the reigning Einsteinian fudge factors that the Pasadena space boys have been recording and puzzling over. It also assumes a generally omnidirectional ether of variable consistency due to gravitational shielding. This requires random particle motion far in excess of light velocity and is consistent with similar anti relativity concepts such as those attributed to Tesla. If only Einstein had been able to extend the one good insight he provided regarding Brownian motion to the modified behavior of much finer particles in ether!

It should also be made clear that a different interpretation of the constancy of c may be inferred from my own formula. Note that the value of V in the numerator refers to an intrinsic peak velocity matching the change in gravitational energy, whether kinetic or potential. It assumes the equivalence principle of Einstein, but does not refer to any constant velocity. From this, however, equations almost exactly like those of Lorentz may be used to determine that changes in clock speed, length, mass and energy will take place between the points of zero velocity and peak velocity for the acceleration required to match the value V, or for the equivalent gravitational force. This concept is actually used by the relativists in explaining how SR gives the same results as GR for a twin who blasts off and immediately returns home. It would be more rightly said that there is no need for SR, and that the twin example using uniform velocity is out of order. A second difference is that the constant c is replaced in the denominator with what is called an intrinsic maximum velocity. For a photon, the constancy of c an be respected here, but for objects of mass, each atomic configuration will offer slightly different resistance to the standing ether; therefore, given enough digits, real data will show somewhat greater results than Einstein's, as they do.

After also seeing confirmation that the Pound-Rebka experiment was explainable in simple Newtonian terms as I'd so found it myself, I've even balked at the notion that clocks run at different speeds in gravitational fields. If they do, it would seem that some accounting for that would have been necessary, at least if the loss in energy between two vertical distances is reflected in decreased wavelength known as gravitational redshift and c must remain constant. Such redshift, if any, must, like Doppler shift, be based on a relative velocity change. If c is constant, then the result must be reconciled by slower clock speeds at lower gravitational potentials (stronger gravitational fields), but no experiment has ever discriminated between the two partial effects. The Pound-Rebka experiment didn't actually prove

a real shift in wavelength, but only that inference based on a loss in energy. Let the reader refer to the paper by Marmet on this subject, which I haven't yet read myself.

My guess is that the redshift inference is the sole and valid explanation, leaving open the question of how the Michelson-Morely experiment could have been null, the moon being powerful enough to yank an ocean several feet upwards but unable to skew a weightless photon as much as a hair, yet Pound-Rebka results clearly showed both gravitational and velocity shifts. To be contrary, shall we state our null hypothesis: the Pound-Rebka shift is accounted for by a slowing in upward velocity without any change in clock speed. Okay, yes, please, I don't want to be a pariah, don't hurt me any more, I can't stand the pain. I'd prefer to think that clock speed does change with gravitational gradients, but I'm not a physicist and no longer trust them after having already survived professional solitary for my entire life, which is righteous punishment for anyone graduating at the top of a class. The very inventor of the atomic clock raised strong objections to the gravitational and acceleration variable time conclusions drawn from the Hafele-Keating experiment, the data later showing to be entirely fraud, so the slowing of clocks has yet be convincingly demonstrated for some of us beyond Einstein's prediction of starlight deflection that was as celebrated as it was unwarranted. But, to appease the immoral majority, if you have the time, I decided to add the following section and prove that at least Einstein was right indeed, as he must have been, about the slowing of clocks, though not about the reasons or the mathematics that he dressed this fact it.

The Law of Physical Measurements

Or a Brief History of Time **(Einstein saved by Foos)**

The relativity scam and the cutting edge of astrophysics both prey on the inability of the human mind to grasp the subtleties involved in the ultimate nature of measurements and also struggle with the mystical perception of time by the great masses. Hopefully, it will one day be said that these "modern" times were the darkest of all in human history. When I first wrote my own unified field essay, the effort focused on key contradictions in Einstein's reasoning and how these were essentially violations in procedure for making measurements, that proper procedure is neither arbitrary nor up to the whims of human invention as Einstein portrayed it (I will forgo the certain fact that simultaneity is not relative as Albert declared, but firmly absolute). Of course, I knew in the beginning that being right about such things could attract only negative attention. I only wished to clear the cobwebs from my own mind that had gathered there from the leaven of Herod. But, not wanting to waste the results of an earnest effort, it seemed far better to replace my own grand slam with the objections of prominent physicists who offered far more credibility than my own, hence the links of those precious few surviving PhD physicists who have noted the same problems. These are provided in the special section below under Literature Cited.

The nagging feeling persists that I ought to make some simple statement that will raise human consciousness above the clutter of the Big Bang and the great modern lie: the simultaneous proliferation of literary trash, modern medicine, local news, wars on terror, wars on drugs, the masquerades of social justice, government assistance and

junk science jamming every channel of the human nervous system with equal vigor. This feeling of social obligation stems not from being a physicist, but from a sound mastery of mathematics concepts acquired from years of formal problem solving in biology and chemistry where practical physics is always a fundamental part. The Randomized Block Theorem is a demonstration of the acquired ability to penetrate the essentials of a complex problem, boil them down to a clear answer, and fit them to a practical use, while also making it possible for others to reach the same insights. It is then time for me to make this statement, that being my promise here and now, within a few concise paragraphs, to give the reader the key to a profound mystery that cannot likely be found anywhere else. I will, in fact, explain in the most scientific and fundamental sense, the true meaning of all physical measurement, even time, the meaning of spacetime as it is and not as popularized by relativity, and the essential features of any temporal or spatial measurement in physical reality, including the reason for time dilation/constriction. Of course, once grasped, you, in the rare event you should happen to be reading this, will likely say, "Oh, gosh, is that all?"

Before expounding further on this point, however, let me emphasize that the appropriate correction to Einstein's garbled theory is amazingly simple. For starters, his second postulate, that the speed of light is constant for all observers in relative motion is absolutely untrue, a fact that the reader can hopefully determine by reading both sections on that subject in this paper. If it is properly replaced according to the Law of Physical Measurements, then it all starts to make more sense, since the definition of all physical measurements requires the same and no experimental verification is required. Let us restate the postulate for the sake of the Unified Field by Foos. The speed of light throughout all gravitational potentials (gravitational field strengths) is constant, despite changes in other physical measurements that may occur, and all changes in physical measurements will be covariant throughout a gravitational gradient. Thus, a specific gravitational potential is the better definition of an inertial frame, provided it is subject to no other forces of acceleration or deceleration. So far I have also assumed that clock speeds vary with gravitational potential as did Einstein and most physicists, however open to question that may be. Given that extremely strong likelihood, the ether model herein proposed, with viscosity corrections to the standard equations for kinetic energy, will also provide a perfectly accurate match between experimental data and this theory when used as correction factors to classical Newtonian mechanics.

This grand claim is not made from the standpoint of a professional physicist or one very knowledgeable about advanced physics, but instead based on a consistent approach to the definitions required for making measurements and a more rational approach towards a theory of gravitation by someone gifted in finding straightforward mathematical solutions to complex problems. The main subject of this paper, the randomized block theorem, verifies that using a different insight with rigorous mathematical proof. The advantage to the statistics theorem is that proof requires nothing but classical algebra, while problems falling into the class of relativistic argument feature far more complicated constructions. If the reader is able to accept this logical approach and waive the imaginary spacetime concept, then the universe becomes a rational, steady state, infinite continuum of ether density covariant with gravitational potential and a continuous recycling of matter and energy. The background cosmic radiation is likely also nothing more or less than the random, kinetic flux of subatomic, charged particles in the ether medium.

Nor do I apologize for an off topic excursion, because all of science rests on this fundamental concept which has yet to be taught in any public school or university. It should explain why clocks must in fact run slower in stronger gravitational fields, but also why such predictions by Einstein when verified by experiment were really a simple cheat when he could have known the answers in advance had he read about the Michelson-Morley experiment, the biggest event in physics history at the time, and not been wrapped up in complicated "thought experiments" that so thrilled the public. I will also explain the correct definition of time in physical rather than mystical terms. The mental block to understanding time is the common use of it for scheduling activities, attending funerals, and gracing philosophy. The romantic perceptions of time then carry over to the spending of fools' taxes on research into time travel (based on these very notions of Einstein's), amidst similar rubbish like remote viewing, as children suffer and die from vaccination injury and snake oil science. We are never conscious of the fact that the perception of time is only the combined consequence of the second law and entropy. Like the length of a meter, it is fundamentally only the number of electron cycles that can be used to define a meter. The second law requires that all chemical and physical changes beyond static equilibrium are irreversible, that they move in one direction as some of the energy driving them drains into the sink of random thermal energy. How order in the universe was originally created or might ever be restored is starkly absent from scientific discussion. We are very wrongly left to assume that everything started with the Big Bang, a mythical event which truly never happened. The fact is that entropy reverses near the centers of gravitational mass in accord with an ageless cycle, and this is not meant to reflect on religion in any way. When entropy reverses, however, it does not mean that time runs backward. It only means that ether particles, the result of the annihilation of matter many times over, are re condensed into atomic particles. The conditions for those processes are most extreme, where clocks simply do not run at all.

Let us then begin our exercise with the most common form of measurement, the unit of length. The common standard for length has for many decades been the meter, and the agreed upon definition for the meter was at one time a bar of platinum that rested in a climate controlled room in Paris. I am not well versed in these details, so I may not be perfectly correct about the where and when, but the pertinent essentials are the point. The main drawback to this method is that despite such care, a meter is never the same meter whenever conditions change slightly, particularly temperature. It is also difficult for the rest of the world to gain access to the grand meter for purposes of calibrating the many minor meters. For most practical science, such a definition isn't helpful. What is needed is a definition that never changes under any circumstances and can be verified anywhere, anytime. The only answer must be the number of wavelengths of a specific spectral line emitted by an electron in a specific shell orbiting the nucleus of a specific element. Don't ask me how to count them, though.

This was the definition finally adopted, though I no longer remember the particular element or spectral frequency (I believe it was cesium, also the basis for the atomic clock). You can look that up. It is also, in principle, the only ultimately meaningful definition of length, because this wavelength will never change, at least not in a vacuum and not as long as its path is not otherwise obstructed. Nor does the principle depend on conditions of spectral emission as might be altered by extreme conditions, but only on the reliable measure of either the designated frequency or wavelength. What we have yet overlooked, however, is that it is flatly not possible to give an ultimately meaningful definition of length without invoking matching measurements of both time (wavelength is a function of velocity which

depends on time) and energy, and that a measurement of length is not separate as it might seem in the daily world, but is in fact a fundamental measurement of a single unit of all space, time, velocity, time and energy as they can only occur together and all jointly depend for fundamental definition. Henceforth, if you get lost, give long and sober meditation on length being only meaningful in terms of the fixed number of crests or troughs between two points along the path of a light wave in motion, and that this number is identical to the time taken for a photon of a given energy to travel that distance. Time, length, and energy can then only be defined in terms of each other. This wavelength represents a specific energy value that is also fundamentally expressed in terms of Planck's constant. Planck's constant remains constant for any light frequency (velocity in terms of crests per second) and for any spectral emission under any conditions. So it seems, anyway.

However, if the path of the light beam is upwards along a gravitational gradient, then energy is lost and the frequency shifts towards the red. This was verified by the Pound-Rebka experiment. This experiment is usually considered to be a verification of general relativity, but as Marmet points out and as should be evident to anyone, the same results are accounted for by the Newtonian energy changes between two gravitational potentials. Relativity has no business being there, but since it somehow worms its way into everything, we must believe that the shift in wavelength involved no change in the velocity of light, c. A photon may have no effective mass, but, unless Planck's constant becomes variable, the energy loss is reflected in a lowered frequency, on that there is no disagreement, but then how does c remain constant? Well, there was Einstein's assertion that distances shrink in greater gravitational fields, then length is constricted at lower elevations as Einstein's version of the Lorentz transformations predict. But if a meter shrunk by half, it would still look and feel like a meter, and a meter would still consist of the same number of wavelengths of the same spectral emission and the same energy unit at all elevations; hence a constant value for c along that local path. However, the two yardsticks cannot be directly compared without them shrinking or growing in the process. If gravitational length constriction alone were the answer for a changing wavelength that preserves a constant c, then the meter stick would expand at the higher elevation to give a larger wavelength, but the velocity of light would slow, not as relativity dictates.

That being the case, clock speed must increase at higher elevations along with lower kinetic energy (higher potential energy), the same tradeoff for potential energy as for any object of mass that may be tossed upward. The inference is then that clock speed and length are less at lower gravitational potentials; therefore, the constancy of c is preserved, as seemed to be validated by the Michelson-Morley experiment; however, all measurements were obtained at the same gravitational potential; therefore, all that the experiment proved was that the velocity of light is the same in all directions for all observers at rest at a single gravitational potential. That would have been the correct interpretation. As for the non null data that was suppressed from public scrutiny, that would be owed to motions of the moon and other more remote and faint gravitational influences producing small frequency shifts and validating by inference the v+c model, not a constant c for observers in relative motion.

Here's where it cuts deep. If the frequency of crests along the upward travel is only half (for argument's sake) its original value between two given points in accord with the Pound-Rebka results, then IF c is constant, as relativity insists, then any clock fixed at the higher point must be running twice as fast as one at the origin. Since Michelson-

Morley proved by experiment that c must be constant in all directions, the conclusion that clocks run at lower speeds in stronger gravitational fields is an unavoidable consequence. Oddly, both are predicted by the Lorentz transformations if used to predict time/space warping due to uniform motion. No wonder Einstein claimed to have not been aware of the Michelson-Morley null result, then a stroke of superhuman genius; otherwise anybody could have known that clocks run slower at lower elevations while distances shrunk, though if both did that as claimed, the effects of both would cancel any frequency change over a gravitational gradient as found by Pound-Rebka.

This did fit the null results of Michelson-Morley, which Einstein claims not to have heard about, but not the Pound-Rebka demonstration, which had yet to be done, because a frequency shift does then occur.

Let me interject a point about Einstein's claim to have never heard of the Michelson-Morley experiment. Here is the greatest scientist of all time, claiming to have never heard of the most famous experiment of all time, which his theory is supposed to have explained. That this doesn't wash will never deter Einstein's legions of followers, who believe he was a non de script patent clerk during all that time and out of the loop, but this only amplifies the man's genius. Was Dr. Einstein lying? For anyone familiar with the sequence of events, it would seem that he must be, since he freely and openly used the Lorentz transformations as part of his own work, as usual claiming them as his own simply because he made a different interpretation of them. Are we then to believe that Einstein had no knowledge of the purposes for which Lorentz had himself borrowed them, that being explicitly to explain the null results of the Michelson-Morley experiment? I'm sorry to say that I can't imagine anyone fool enough to believe that.

As for all motion being only "relative" to some other motion, that notion is by itself acceptable, although the inferences piled on top of that that as a whole comprise the so called "science" of relativity are far from it, beginning with the constancy of c between source and observer. Instead of the spacetime fantasy, the simultaneity or timing of events are also absolute as long as they take into account differences in the rates of clocks at different gravitational potentials, which themselves comprise an ether with velocity perpendicular to the primary gravitational gradient. It is also true as well, that differences in the direction of this gradient will vary as an object's position changes in relation to other objects. This means that there is an "absolute" motion to the ether in terms of gravitational influence, but the direction of this motion is entirely coincident with the vector sum of all gravitational influences and is in fact alone responsible for the force of gravity. It is also not a matter of debate as to whether or not a specific gravitational field density (with or without gradient) corresponds directly to an absolute rate of clock speed, though this definition has yet to be made. The solution to space and time, despite casual use of the term relative, is not relative, but absolute, in contradiction to Poincare, Hilbert and Einstein and all who follow.

But now back to the issue of a constant c in the Pound-Rebka experiment. Is it possible for the observer at a higher elevation to measure a constant c given the drop in frequency? Actually, only if this is inferred from a clock rate that increases as the beam rises, but then length would have to expand simultaneously. If this were true, however, neither would a redshift be observed. And yet they tell us that Pound-Rebka confirms relativity! What the Pound-Rebka experiment tells us that neither observers at the higher elevations or lower can be called "local," but that a constant c

is true only at any point along a gravitational gradient as it is traveled or in all other directions at a single gravitational potential. Otherwise, the observer at the higher elevation properly reports a frequency drop and also a slower c as c-v due to a gravitational time lag. He does not see that the clock at the beam's origin has been running more slowly, such that as the beam rises, it loses velocity due to frequency change and accelerates due to a quickening clock speed. Which is correct? Both are, depending on whether time intervals or frequency shifts are used for measurement. In this way, the constancy of c is fixed along all points traveled, but it will be shifted either higher or lower for other observers depending on how they make measurements and inferences based on them. And, oddly enough, both of these effects are additive for gravitational refraction of light; therefore, Soldner's 1801 prediction for starlight deflection amounted to exactly half what Einstein predicted per GR.

Could it be? Is the constant c assumption invalid and then the Michelson-Morley experiment a sham? If c is variable and clock speed fixed, then the lost frequency at the higher elevation can only be the result of diminished velocity from c1 by delta c to c2, the same as observed for any material body when thrust upward by a given unit of energy. This interpretation actually is confirmed by the Pound-Rebka strategy of raising the energy value of the upward moving beam by accelerating a crystal receiver towards it at delta c, so results depend on the Doppler effect to raise the relative velocity back to c1 between the crystal and the beam, hence restoring the frequency required to trigger absorption at the matching wavelength. It worked, and for the same reason that radar works. The Doppler effect, for either sound or light, depends on the principle of light speed being variable with respect to observers at different relative velocities, thus the crests impacting the target at different rates of v+/-c. The only permissible conclusion, especially for those with speeding fines, is that c is not constant irrespective of the relative motion of its source nor during travel through gravitational fields. Now, I promised to prove that clocks run slower in stronger gravitational fields, thus defying the null hypothesis just this one time, but ended up proving just the opposite by letting familiar and easily understood facts decide. Remember, I'm a statistician, not a physicist.

Yet if this outcome still seems not profound, allow one prediction that no scientist has ever made, a logical leap that lacks direct evidence, but which would one day establish me as the greatest scientist who ever lived, not a big accomplishment, unless given my lowly gene pool. After sufficient study, anyone can see that there was never a Big Bang, but that the cycle of matter and energy conversion in the universe, like that of the tides, the seasons and all things, is a simple, repeating cycle. One possibility is that matter precipitates very gradually from energy after either extreme cooling in deep space where entropy approaches zero. Even more likely is that it precipitates in high entropy sinks at the centers of planets or stars where it is ultimately re-ejected, perhaps by the infamous black hole. It is very possible that the outer shells of large concretions of matter present a semi permeable membrane to ether particles, analogous to osmotic swelling, where high velocity particles smaller than photons are trapped under pressures sufficient to cause them to gradually crystallize into electrons and other rudimentary building blocks.

This idea lends support to the expanding earth theory, once popular but now abandoned, but which still continues to have strong points in its favor that continental drift advocates have not been able to otherwise explain. It would be no surprise that experimental physics would be unable to confirm the precipitation of matter by such means, especially when it has yet to produce a scientist daring enough to question that perhaps the creation of matter and original order

in the universe was not the sole creation of a single Big Bang, but part of an ongoing cycle where each joule of entropy on one end is balanced by a reverse joule of entropy on the other. One obstacle would be the difficulty of producing such extreme conditions in a lab where results could be observed, but the major obstacle would be the complete collapse of of the most cherished myths of modern physics, a public disgrace too great for the foundations of modern society to endure. Yet the precarious state of world economy provides some hope, as long as perpetuating modern mythology continues to depend on government funding, and the underground sanctuaries of the extremely wealthy could end up being their collective tomb.

But, lest I be accused of being simple minded, let's take a stab at the flow of time through the Foos ether lens, where gravity is caused by the shielding of high velocity ether particles along the outer surfaces of particles of mass. It is clear that there could well be more particles on average flowing inward than outward, hence a small number likely precipitate as electrons or protons; therefore, the growing earth hypothesis becomes a perfectly rational fact. The exact mechanism and proof of mass accumulation by earth is a long ways off, far beyond the grasp of growing earth proponents, and it is more likely that the majority of the heavier elements are created through a variety of processes in stars (not a Big Bang). It is also apparent that electromagnetic waves must travel through the ether medium, and that this medium is thicker towards the center of bodies of mass. Since the passage of time can only be measured by that transmission, Einstein would be almost perfectly correct, a watch must run more slowly in a gravitational field. That, however, was never the point of either the Michelson-Morley experiment or the Pound-Rebka experiment, which measures only local frequency shift along a gravitational gradient. Leave it to the proponents of Einstein to further garble the message. This deduction for slower clock speeds is separate from the same requirement for conservation of momentum if redshifts and blueshifts are observed from remote vantage points.

We thus have two different types of light velocity issues. The first, the Pound-Rebka result, only measures the lowered velocity of light on a path away from a gravitational center as reflected through frequency shift, and this is confirmed and measured by means of countering it with a Doppler effect by accelerating an absorbing crystal towards it. This effect can be calculated using the classical Newton gravitational potential difference between two elevations. The photon is affected in the same way that any particle of mass is affected as described in any freshman physics text, except that the loss of energy is not directly calculated in terms of mass and velocity, but in terms of frequency shift. This means that on a local level, the velocity of light slows as it exits a gravitational field and speeds up on entering one. We use the word photon here loosely, knowing that a photon doesn't really exist except in terms of the discrete packet of energy felt as it strikes an object. Of course, there must be more to the story if the photon's momentum is conserved.

The other type of velocity change is observed not locally, but remotely. Because time flows more slowly at the lower gravitational potential, the velocity of light as observed from a higher potential will be viewed in the opposite way, though it will never be so measured along the local path where the frequency change observed by Pound-Rebka is an entirely different effect. Instead, the variable rate of clock speed at different gravitational potentials ONLY effects measurements irrespective of frequency as they may be made by a distant observer along a path that may or may not begin and end at the same gravitational potential and identical frequency. The relativity talking heads have managed to get these two issues entangled and thus toss the world into an intellectual black hole. To calculate the difference in

time passage, and hence slowing of light velocity through gravitational fields, we can employ the same KE relation for accelerating bodies as I slipped in earlier. The result, however, will be very slightly larger than that predicted by Einstein, because the velocity of the ether stream through mass is slightly less than that of light speed. The formulas otherwise appear similar, but they are not. Mine does not represent a limit of c that is used artificially to calculate time and distance warping between inertial frames, but instead is a percentage limit on kinetic changes owing to the viscosity effect of an ether. Oddly, the two approaches give nearly identical results, but mine has a solid logical foundation, requires no mind bending or space time curvature, and also explains the slight deviations from Einstein's predictions as routinely noted by the space lab at Pasadena.

It also explains the reason why large bodies of mass continue to gain more mass over millions of years. It's all very elementary, Einstein. I should add that for the matter of clock speed, the effect must be considered from a distance outside the path of the beam and not along the path between two local potentials. This means that the effect observed must take into account the angle of incidence between the beam and the center of gravity as well as the lowest and highest potentials along that path. That may require juggling of sines and cosines similar to Einstein's awkward formulas; in fact, I haven't sat down and labored through the details, but suspect that all of Einstein's formulas would work with two modifications, the first being the substitution of c with a smaller value reflecting a maximum viscosity (in terms of speed of mass through ether and somewhat dependent on the kind of mass), and the second being that the effects observed have nothing to do with coordinate systems but only the rate of clock speed as affected by ether viscosity as it exists at a given gravitational field density. Touche.

But read the entire commentary at the end of this paper. The threads that support any aspect of relativity, not only a constant c model if interpreted between source and observer, but even time dilation on a different premise, are far weaker than most people can suppose. Keep in mind as well, that though clocks do run more slowly in a gravitational field, that does not mean that time itself is "dilated" or runs more slowly, or that time travel is in any popular sense of the world a realistic consideration. I would, however, advance an explanation for the confusion. The relativists say that light slows down on entering a gravitational field (speeds up on leaving) since it is deflected and late in arriving. Oh, then what happened to the constancy of c? And we see light redshifted when moving upwards as in Pound-Rebka, and we can blueshift it back by accelerating an object towards it per Doppler, yet the relativist insists that the beam was not slowed as it gained height? Well, why not just say that the value of c is not constant between source and observer or along a gravitational gradient, but only point to point along the photon's own path? We could say that on one hand, it speeds up, and on the other, it slows down, depending on what kind of measurement is taken. But for someone who happens to be riding on a photon, these two effects cancel each other, and no change in velocity is experienced. That's reassuring; otherwise we're left trying to understand how a ray of light accelerates as it travels upward and still manages to lose energy. Leave it to Albert. On entering a gravitational field, the photon slows down due to increasingly slower clock speed and at the same time speeds up an equivalent amount due to Doppler blueshift for a net momentum change of zero. No one is the wiser unless measurements are taken that reflect only one kind, that of frequency shift or clock rate, and those differences can only be discerned from a remote vantage. For the photon, no changes in clock speed or length are experienced.

That, my friends, is the correct answer. Now don't forget to read the commentary at the end of this paper, where the Foos viscosity formulas give a perfect solution to the Pound-Rebka experiment without the use of a constant c or relativity by Einstein. Experimental verification is straightforward and makes use of the undeniably useful randomized block theorem by a method using two experiments analogous to two blocks of a single randomized block design. The first experiment utilizes the Pound-Rebka shift in frequency with gravitational potential, except that three to four heights at equal separation with matching frequency measurements are required. The second block is a straightforward time delay measurement similar to Mr. Grusenick's apparatus, but fixed at perpendicular (one beam traveling up and the other down) and also over four different heights, perhaps intervals of 50 meters. The Michelson-Morley interferometer design is useless and must be replaced with one where no differential stress is suffered by the mirrors or by a different type of measurement. If the four measurements are considered to be treatment effects in both blocks and an F ratio and FCC (Foos coefficient of covariance) calculated, then the "relativistic" counterparts using the viscosity model derived in this paper with a non-constant c will be verified if p(F) < 0.05 and cast in stone if the coefficient of covariance, FCC, is 1. Then I want my ticker tape parade.

Section 11. Conclusion.

Proved: For any set of randomized blocks in a uniform gradient, there exists a number r such that r varies from zero to one as the gradient varies from parallel to perpendicular for one member of a set. The r value for replications represents the average covariance among treatment pairs to the average variance across replications and corresponds to the ideal orientation of 1 to the absence of orientation for block designs. The r value can be calculated using block mean square less error mean square (BMS-EMS, conventional ANOVA terms) and dividing by the sum of cross block treatment variances. An r value for treatments in the same design or for other replicated data sets can be calculated and used to evaluate uniformity and background noise.

All significant differences among replications in a randomized block experiment are attributable to the sum of covariance values for all combinations of treatment pairs across blocks. A combined total and average covariance can be calculated using the F ratio for replications. An averaged r value for randomized blocks for all treatment pairs can also be calculated, so that the significance of replications may be reflected in terms of the fraction of block to block treatment variation owed to covariance among treatment pairs across blocks. Ideally, assuming a variable gradient or vector sum of several across blocks is uniform, the average value for treatment pairs would indicate the deviation from right angles that an external gradient intersects replications. If the extraneous variable can be identified and measured, the magnitude and direction of the gradient can also be estimated and used with other regression variables in the experiment for predicting outcomes with better precision. Covariance r values may in certain cases have more practical value than treatment variables in the identification of cause and effect relationships; for example, the etiology of diseases and the identification of pre-existing causal links between disease syndromes.

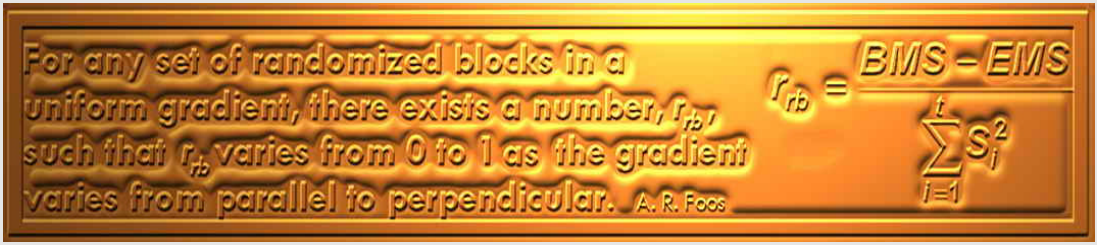
In the case of a Latin square, r values for both rows and columns can be calculated using the same approach, but it is difficult to conform to the implied assumptions for Latin square designs. If rows are properly oriented at right angles to an intersecting gradient, then columns should also intersect at right angles to a different gradient where neither can interact with the other. Only in rare cases could such a configuration can be justified. If the effects of both gradient variables can be measured, it is possible that any interaction between them could be identified using regression analysis, but neither meaningful r values or a reliable ANOVA is a likely result. When the larger number of treatments required for a Latin square is considered, only in rare circumstances would a Latin square be useful.

The r Value for Treatment Effects

It would come as no surprise that an r value and formula for treatment effects is not difficult to derive, and that it would be similarly useful while offering some advantages over p(F) values. The "cautionary" comments made by the above references against using extraneous variables do not provide any quantitative criteria by which such precautions might be made or overcome; therefore, the r value is useful in establishing a measurement, but only that. There is no accepted measure of linear correlation for an extraneous variable that would justify or exclude inferences made on the effects of extraneous variables; however, it is the premise of this paper that appropriate data conversions can and should be used to identify both independent effects and interactions as is routinely done for treatment effects. In any case, effects of extraneous variables should be identified, and this is even more important to the extent that interactions or bias occurs in treatment effects as a result. Data conversions in regression analysis permit non-linear relationships and interactions among treatment effects, while it is also unwise to ignore bias resulting from less than optimum intersection of extraneous variables with blocks. In particular, regardless of whether it is appropriate or not to examine the effects of extraneous variables, it would be clearly inappropriate to accept treatment results in a randomized block design if the r value for treatments, being a good measure of linear effect, is not greater than the r value for blocks, at least where the effects of extraneous variables are excluded from equal and thorough consideration.

In practice otherwise, the only reason inferences regarding the effects of extraneous variables in blocks might not be made is that they often cannot be quantified as are treatment effects even when permissible in the design. For a treatment value, the formula would be similar to that for blocks, except that the numerator would be TMS-EMS, and the denominator would be the sum of all block variances (instead of across block treatment variances). For example, the denominator for the r value for blocks would consist of the cross-block variance for treatment 1 plus variance for treatment 2, and so on..., while the denominator for the r value for treatments would be the variance of treatments 1-t in block 1 plus the variance for treatments 1-t in block 2, and so on... if the r value for treatments is less than that for blocks, then the extraneous variable can hardly be called a nuisance as a rationale for excluding detailed analysis of its effect on results, but would demand equal consideration for careful analysis of its effect on treatments whether these would be independent or not. If instead, the r value for blocks is not significant, then the purpose in blocking would be open to question not because of a lack of independent effects, but because of a lack of any effect at all.

The Foos coefficient of covariance (r value) for both blocks and treatments should be an important tool for minimizing bias in the initial field plot design, for quick and meaningful analysis of extraneous variables as well as treatment effects and interactions, and for evaluating homogeneity of the overall matrix.



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Example of Blocks Arranged Perpendicular to a Contour

Section 12. Commentary, Hoax Explained, the Correct Solution.

This section is not well related to the theme of the paper's main subject, a statistical theorem, but this brief critique is provided as an extension of the approach to mathematical descriptions of reality. The quest for understanding is in itself its own reward. The statistical proof is one of those concrete extensions of basic mathematics principles, two and two makes four, that cannot be questioned. The theory of relativity is an artificial set of self enforcing inferences that is only affirmed by circular reasoning. It requires that figures be altered in order to fit the theory, thereby confirming the theory. Since its widespread influence stems from heavy mainstream publicity and political pressure, it parallels an array of other deceptions perpetrated by world political and monetary systems. Exposing such core deceptions sacred to world politics isn't rewarding in terms of money or prestige, but gives a much better night's sleep and a feeling of liberation. I was excited to find and announce that my years of waiting to resolve the fallacies of relativity and fix them were now over. Einstein, Poincare and Hilbert (Heisenberg and many others could be included), however self deluded, did in fact perpetrate a hoax. They rationalized an artificial contrivance, a religious dogma and not science, as false answers to gravitation and physical measurement. Einstein isn't here now, and it's time the world faced up to the mess he helped create.

I figured it would be healthy for the soul, however futile, to tackle the thorny mess that Einstein had left us in, though at the outset did not expect to uncover the complicated hoax it plainly is or find the simple answer to it you can find here. It is, of course, unlikely that any light penetrate the modern cult of relativity, but that makes it more important

to try, especially when you know that in the midst of a batch of contenders, you alone have the one solution that will flip the light switch on for average Joe. It would hardly be forgivable if I didn't give it a shot. Initially, the attempt floundered over my adherence to the constant c between source and observer demon. This really hit hard when trying to explain the Doppler / gravitational shifts demonstrated by Pound-Rebka, even after my viscosity equation solved for the right answer within minutes. So I set the task aside until several months later the details of the starlight deflection prediction by Einstein confirmed my growing suspicion that relativity was a hoax. It also readily dawned on me that the many other PhD relativity critics were correct, who insisted that the velocity of light was not constant between source and observer in relative motion. Now I had a simple answer that I was free to defend without hesitation or fear of failure. The same approach can readily solve any other (legitimate) problem that claims a link to relativity.

While breaking out of my constancy of c fixation, it was dawning that the Michelson-Morley results had no meaning in the source and observer sense, and I was beginning to suspect that they had been improperly reported to favor Einstein. Renshaw: "When Eddington's observations appeared to come down on the side of general relativity, a New York Times headline proclaimed: "New Theory of the Universe. Newtonian Ideas Overthrown ."" In that same 1996 article Renshaw takes issue with the Lorentz (Fitzgerald) contraction being a result of uniform motion and makes the following statement: "The author has demonstrated in several previous papers that the Lorentz length contraction should not exist, and, therefore, will not be found by SIM. If the residual is found, then special relativity will, for the first time, have passed a direct test of one of its most fundamental predictions. If the residual is not found, then special relativity will have to be abandoned completely and the New York Times may wish to consider a retraction." This was a space experiment scheduled for 2005. I don't know what the result ended up being. I sent an email to inquire, but got no reply. The Lorentz contraction, of course, does not exist, but a real contraction does and is coincidental with clock speed variation in gravitational fields. I don't know what SIM really was to measure or if Renshaw recognizes that wherever clock speed changes, so does length as a consequence of definition.

The design of the Michelson-Morley experiment has taken much criticism in that it failed to measure the one way speed of light, though to me, the net direction of ether flow is perpendicular to the earth. It turns out that both length contraction and the slowing of clocks are simply intrinsic aspects of measurements, an inescapable inference stemming from gravitational redshift combined with a constancy of c on a LOCAL path along gravitational gradients. The confusion over the Pound-Rebka experiment affirming SR lies only in the assumption of a constant c between source and observer, while logically and ironically relativity (GR) itself denies this. If the correct assumption of a velocity dependent gravitational redshift countered by the Doppler equivalent is made, then the clock must run slower at a lower gravitational potential, and all other physical measurements change by the same proportion. It is only in this way that a frquency shift would not disrupt the conservation of momentum. It isn't relativity, just common sense. Of course, ALL experimental data of any worth would have to conform to this model, but the dogma of physics has provoked the mainstream and scientific brotherhood to shameless blasphemy in order to support the relativity air castle. All mainstream physicists must submit either bogus data or falsely construe real data to support relativity.

But in mid March, 2010, after considering the sequence of events leading to the starlight expedition by Eddington, I unexpectedly realized, not that I hadn't tentatively drawn the same conclusion in my first paper three years earlier, that the key contradiction was in the very subtle distinction between a "local" and a "remote" frame, one that Einstein himself badly botched with breathtaking ambiguity, and that the v+c model had always been the correct one. It is simply that all of the effects in physics that touch on such issues, so badly garbled by Einstein's various exotic and inconsistent versions of relativity, can be handily explained by those two vectors, standard Newton and clock speed as a function of gravitational field density. A flexible clock speed due to ether viscosity requires corresponding changes in length which are vaguely similar to the Lorentz expressions, but for the much different reason that the drag on kinetic energy by a gravitational potential change increases in the ratio v squared over v max squared. It is as if everybody were searching for a fairly simple and obvious solution, but instead relativity came, complicated, exotic, dramatic. The clock speed quirk adjustment to Newton's mv^2 is dramatically simple to solve, but relativity sucked the human mind into a black hole from which it will never recover. And, no, the universe is not expanding, there are better explanations of intergalactic redshifts. As for any recessional redshift owing to expansion as opposed to vanilla velocity, all points in every gravitational field will be diluted simultaneously and lengths expand at the same rate that clocks speed up, even if we apply the logic of relativity. Thus, logically, there should not be any frequency shift due to expansion, nor will any such effect ever be demonstrated. The real causes are a combination of vanilla Doppler, collision loss during transit, different ionization properties in deep space, and...

Anyway, the correct answer to gravitation and clock speed, which has nothing to do with uniform velocity, turns out to be terribly simple, as is always the case in hindsight. Consider that the hypnotist's subject cannot under any circumstances contradict his master's commands, and neither will any but a tiny number ever be able to exit the Einstein box to comprehend the simple answer found here, let alone the specter of fatal professional consequences for even a Burger King manager who hints at disloyalty to Einstein. If the son of God were to announce himself from the pulpit of poverty and meekness, he also would be shortly murdered, so armed with that knowledge, I strongly urge you to invest your time in sober contemplation of the New Testament. It isn't any accident that the halls of science, having been built by men of strong Christian faith, have been taken over by pretenders who express carelessly guarded contempt for the premises of its rightful builders.

Now, back to relativity and its origins with special relativity, 1905, and the media fascination over Einstein's theory seemingly being an explanation for the null results of the Michelson-Morley experiment in 1887. Einstein, the world's suddenly most famous scientist, claimed not to have known anything about the Michelson-Morley experiment, the most famous in the history of physics, even though he had openly used the Lorentz equations as the focus for his theory. The Lorentz equations had been invented for the single purpose only of explaining the Michelson-Morley experiment, and yet Einstein, claiming not to have known this, proceeds to make a series of identical blunders.

In the Michelson-Morley experiment, both source and observer were essentially the same and not in motion relative to each other, it was only the path of a split beam that differed. Some still claim that the average of the two way trips of both beams would turn out equal in spite of different paths (and later experiments supported this contention). Many

still find that the experiment was poorly designed, at least with respect to the rather grand inferences drawn from it. There was also little or no difference in terms of gravitational gradient unless the periodic variations of the moon and sun should have been enough to cause a shift, which turns out they likely did (deception in the published results are explained in more detail in links in the Literature Cited section). My own uncertain feeling about it is that the two paths were different, but that the ether is a fluid of omnidirectional activity except where perpendicular to a gravitational gradient due to the shielding of high velocity particles; whereas, the experiment was set parallel to the earth. Nevertheless, mild, diurnal and other periodic fringe shifts should have been observed. These in fact were observed, but that fact had never been formally disclosed to the public. Meanwhile, the Grusenick experiment referenced earlier is proof that the Michelson-Morley design would not be useful for such measurements because gravitational torque on the mirrors can be assumed to mask other effects including the one we already know of from relativity itself, that of time delay.

There are other experimental data that also indicate an interstellar shift in light velocity in terms of frequency, an affirmation of an ether and which may or may not coincide with a macro scale gravitational gradient. Here in this paper, I do NOT assume an ether current in the same sense, but only a gravitational gradient that reflects a coincident random ether velocity which slows and becomes more viscous with gravitational field strength, and where these gradients must exist to greater or lesser extents throughout space. But in the Pound-Rebka experiment, there was a phase shift. Also, while the measurement made seems to assume a "local" status, it was in effect remote, because between the two elevations of interest there is a difference in gravitational potential where the lower clock could not have agreed with the time interval measured by the upper clock, which would be required to be somewhat longer if, and ONLY if, c were constant with respect to its own travel along all points at the same gravitational potential. Emphasis, ONLY. Thus, the constancy of c, so badly misconstrued by Einstein, instead needs to be emphasized as pertaining only to measurements made between points along a single gravitational potential, but never when making comparisons between two different gravitational potentials as in Pound and Rebka. The non constancy of c NOT on the local path was thus confirmed by Pound-Rebka by compensating between source and observer with a velocity dependent Doppler shift which always indicates a v +/- c result. That explains the frustration of physicists who notice that c is NOT constant between source and observer, as well as the frustration of drivers who get issued speeding tickets based on the v+c principle of radar. Clock speeds increase to the same proportion frequencies decrease, thus conservation of momentum is maintained; otherwise, go figure how a photon can accelerate out of orbit while losing energy.

It should be noted as well, since mainstream explanations will not dare, that for a fixed (average) distance between the two elevations, if the lower clock in the Pound-Rebka experiment is used then a higher velocity than an average of c should be the result, while if the higher clock is used, a lower than c value is obtained, either of which are quite justified as long as the conditions are given. However, as distances expand on the way up, the only way to keep velocity constant is for clock speeds to also hurry up a bit, and so the loss in velocity using the faster clock at the upper end and the constricted unit of distance on the lower end does in fact match the observed Doppler shift due to a loss in velocity. If units belonging to one set of gravitational "coordinates" are used consistently (any single horizontal plane), then the result is a constant value of c, but for measurements between two different potentials, fixed or in motion, as

well as between source and observer in relative motion, c is simply not constant, but its speed can easily be calculated with proper reference to which units belong to which gravitational potentials.

This is an important concept, the crux to the relativity issue and the key to comprehension. Contrary to the relativist's endeavors to make redshifts and blueshifts velocity independent, gravitational frequency shifts are velocity dependent in the same way that their Doppler equivalents are, but the results vary depending on which units belonging to which gravitational potential are used. The combination of these two velocities, the slowing/increasing due to slower/faster clock rates plus the respective gravitational frequency shifts cancel each other, the result being the ONLY valid constancy of c concept. That is experienced ONLY along any local path through a gravitational gradient, if it were possible to surf along the wave. It results in no velocity change on that path, but both an increase of velocity and decrease of velocity would be measured from any different gravitational potential, depending on how the measurement was made (frequency from the "push/pull" of gravity or time delay from altered clock speed).

This is a subtle concept. It means that as I approach the sun, my clock will slow down, lengths will contract (relative to higher potentials), and other physical measurements will change, but none of these things will be perceived by myself or with respect to objects moving with me. Measurements made of events in my "frame" of reference from a different vantage (i.e., different gravitational potential, stationary or not) , however, will judge these changes to be taking place. This is a radical departure from the logical framework of relativity, but it is the right one, the explanation that clears up the confusion and nasty bickering over relativity. It provides a realistic cause for such effects with mathematical equations that give a distinctly rational and accurate prediction of events that are erroneously considered to be relativistic effects. The reader will likely have to do a lot of incidental research before being able to follow this, but it's well worth it. You'll need to know about experiments like Michelson-Morley, Pound-Rebka, Hafele-Keating, and you'll need to study the history of relativity and read the links made available in this document. I do apologize for cramming the subject of relativity in with a statistics theorem, but this brief critique doesn't require that much extra space.

This section originally served as a place where dialogue with members of a growing earth Yahoo group could be posted for easy reference in hopes of persuading these boys to a non-relativistic solution to gravitation and time dilation (slowing of clocks), one that also gives a strong rational basis for the Earth accumulating mass, which they badly lack, hoping to cite a variation on pair production which frankly doesn't pass muster. This is because this particular ether model casts gravitation as the result of exterior shielding of high velocity subatomic particles. This creates an almost omnidirectional pattern because of the random kinetic activity of these particles, but the highest velocity is at the exterior of larger particles, thus gravity is a downward push, not a very original idea, actually. Imagine a large fish tank where particles are subjected to molecular bombardment known as Brownian motion, Einstein's first serious work. But matter is almost transparent to ether, resulting in some shielding at the perimeter, thus providing the downward push. This also means that more particles are likely to enter a field than can leave if no mechanism for back pressure; hence, matter could precipitate near the centers of large objects of mass. After atomic particles have been slowed, precipitated and merged into atomic particles, ether pressure continues to bear more directly on nuclei, serving to hold protons and neutrons together. Essential to this "proof" of mass formation, is the rational assumption that matter, energy and entropy are in a constant state of flux near the end points of extreme conditions of

temperature and gravitational field strength. Of course, the ether itself is the source of both atomic charge and all subatomic and elementary atomic particles, a fact strongly attested to by Tesla, among others, who dismissed Einstein's relativity and constant c.

Not surprisingly, I took a fair beating from the growing earth group, although it could have been worse, but the experience opened my eyes just enough to finally see how this works. I had already solved the Pound-Rebka experiment using the viscosity model, but remained conflicted by my own belief in a constant c between source and observer. Suddenly, the light dawned. At once now I could see that the v+c model applied to uniform velocity and all source / observer situations, but that clock rates, length and other physical measures would change at different gravitational potentials in such a way that such changes could not be detected along the path of a gravitational gradient or equivalent in terms of acceleration and deceleration. All of the various effects brought out by experiments of note could now be accounted for by traditional Newtonian methods combined with clock rates slowed by the higher viscosity ether at lower gravitational potentials. The precipitation of matter in this way is also a natural consequence very similar to the phenomenon of osmosis across semi-permeable membranes as commonly observed in coarser fluids. This is not a casual theory. It has a fully solid, rational basis for cause and effect which relativity lacks.

A few of the links provided by members helped me realize that this confusion was not mine, but beyond the foolishness of SR as inconsistently understood today, the source of conflict traced back to the deflection of starlight prediction by Einstein. It was obvious that this event was the first erroneous application of GR and tied in a different way to the Pound-Rebka results later. This originated with Einstein's alleged word for word plagiarism of Soldner's 1804 paper on starlight deflection, a prediction he let stand then suddenly doubled just in time to leverage public fascination enough to make the appearance of overthrowing Newton with an entirely irrational and self reinforcing dogma. This is not scientific procedure, but only media sensation. The value I calculated for the Pound-Rebka experiment took only about five minutes using only Newtonian energy loss, but I could not at first reconcile a constant c or see how GR resolved that issue. This was before I found that Marmet had done the same with the Pound-Rebka results, so how could anyone call it a validation of relativity? Then a year later, February 2010, I saw that Soldner dealt with the same Newtonian issue in a different way 100 years before Einstein who took credit for the same by plagiarizing his paper, then refuting it. While the issue of plagiarism is a matter of debate, this issue brought me to realize that Einstein's doubling of the starlight deflection could account for a locally constant c for the Pound-Rebka gravitational frequency shift. The timing and poor rationale surely suggests relativity was a hoax, as Essner later called it a swindle, and this has nothing to do with racial issues, I hope. The only differences between experiment and Newton are simple changes in clock speed, assuming that the starlight deflection measurement was indeed significantly larger than Soldner's estimate. The complicated theory of spacetime is surely of no meaning, just as Einstein's critics have always maintained, but held off publicizing until late in their careers. In spite of the known tampering of the raw data by Eddington, the time delay (slower clock speeds) does seem valid and well confirmed by both experiment and solid reasoning , and that is what my dual vector ether model conveys, nothing more and nothing less. Be careful to note that we dismiss the mystic notion of time "dilation," and simply refer to time lags owing to slower clocks at lower gravitational potentials.

Who knows how Einstein knew that Soldner's value should have been doubled, but my guess is that he had good reason to suspect it based on his own prior work on viscosity, or at least what he had claimed to be his. Or perhaps he had inside knowledge of prior measurements. And/or, as some still insist, Eddington's raw data had been altogether bent to fit a fancy. But how did the doubling of starlight deflection, explained by using a slowed light speed in gravity, contrary to Einstein's prior claims of a constant c, relate to the later Pound-Rebka experiment, which could be accounted for strictly by Newton and a v+c model without mention of any clock speed? If c was constant between source and observer, and the definition of velocity dependent on clock speed, then the opposite inference is required. Still, the Pound-Rebka experiment was widely claimed as proof of relativity, and a constant c seemingly proved by means of a velocity dependent Doppler shift. Odd. How clock speed resolves such a conundrum is never mentioned in the little I read about. However, if the red shift is velocity dependent as in a v+c model, and yet constant for a local measurement restricted to points on the path redefined as local, then indeed, clock speed must be slower at lower gravitational potentials. That short sentence is the entire solution to all phenomena that relativity purports to solve, nothing more than that, and the viscosity equations I provided in Section 10 give the correct answers in mathematical terms, while relativity most certainly does not.

Where did Einstein's inside tip really come from? How could the value of c remain constant between gravitational potentials where a Doppler shift occurred, and how did all this tie in with the Michelson-Morley experiment where no shift was ever observed? It then suddenly hit me that if c was constant only throughout a changing gravitational potential, then there could be no fringe shift at any point along a local path, but that the Pound-Rebka experiment was a static measurement at one of two points along a different local path, meaning that the point of measurement was not really a local "frame," but a remote vantage at one end of a local path. Both a constant c and a v+c model applied, depending on how the measurement is made. Furthermore, if the slowing of clocks explain the doubling of deflection in starlight, then it quite handily also explains how Pound-Rebka could give a different velocity between two potentials and still be measured as a constant c at any given point between those two potentials - if the two vectors cancelled as measured that way, but doubled in producing the kind of refraction necessary for starlight deflection. Eureka!

Thus, the Pound-Rebka experiment fundamentally taps only the same basic Newtonian mechanism as did Soldner's 1801 calculation for the deflection of starlight near the sun, but is a far simpler example inasmuch as it involves an energy change over a perpendicular difference in height instead of the deflection involving gravitational pull (loss of potential energy). The Pound-Rebka energy (and velocity of light shift) is easy, simply calculate the final energy Ef as Eo*(1 - (g*delta h)/c^2), convert E to wavelength and you have the same result as Pound-Rebka without relativity, plus the red/blue shift phenomenon corresponding to velocity dependent Doppler shift between observer and source, NOT a constant c. We can say that c is c and constant through a single (horizontal) gravitational potential, but the value of v in the numerator for solving Pound-Rebka corresponds to the velocity change in the KE viscosity formula, between the lower and upper potentials. In the formula below, delta h will provide a frequency change using either delta v or a lower velocity corresponding to the frequency change verified by Pound-Rebka. But even though c is claimed to be constant between source and observor in SR, in GR it is claimed to slow when approaching a gravitational field and then accelerate as it leaves. It can't be both, so we should ignore relativity, but we do need to

examine our viscosity formula closely and understand what really happens. In the following formula, we can cross multiply the denominator to arrive at the change in KE over the distance h in question on the left corresponding to the change in velocity V between the two heights:

$$KE = \frac{Mv^2}{1 - \frac{V_i^2}{c_i^2}} \qquad \Delta E = \frac{MV^2}{1 - \frac{V_i^2}{V_{im}^2}}$$

The equation on the right is better for describing an object of mass whose natural velocity in free fall from higher to lower potential (or reverse by acceleration) will approach a limit of Vim, maximum intrinsic matching a particular atomic configuration. A velocity change could be either the increase in speed (also predicted by Einstein's GR), or it could be the slowing in speed corresponding to the lower frequency for a true Doppler effect between the falling crystal and the beam in Pound-Rebka. Avoiding the velocity arguments for the calculation, we may replace Vi with g*delta t, which would be of the same proportion to the change in velocity for any body of mass, so that the decrease in energy over the elevation shift should be reflected by the expression KE * (1 - (g*delta t)^2/c^2). The numbers are the same as the Lorentz expression, which has no basis in reality, but in the viscosity approach the problem and solution are both entirely rational. It works out in SI units that the value t for time can be replaced by the value h for change in elevation in meters if the square on that term is dropped, giving delta E = Eo*(1-gh/c^2). Check out this unified correction factor approach against the energy change required for the Pound-Rebka experiment over the distance of 22.5 meters, and you will find them to agree perfectly, though the value reported by Wikipedia is only two digits (see last paragraph in this section for details). The last term in these expressions will be proportional to the frequency change, the change in light velocity between the two points whether lower per frequency or higher per clock speed, and to the change in clock speed itself (slower at the bottom potential, higher at the upper potential). Excuse my casual approach to the mathematics, but it's all just too easy for anyone familiar with such calculations.

The equivalent gravitational energy is thus easily calculated by the unified viscosity formula, even for a massless photon traveling at light velocity using either gh or v+/- corresponding to velocity dependent Doppler. We don't have to pretend that c is constant per SR, or only increasing per GR, we simply acknowledge that both are true depending on the way the measurement is made. The fractional energy change calculated by wiki over 22.5 meters is 2.5*10^-15 in SI units (this I take to mean Eo less this amount). The unified calculation as above then gives Eo*(1 - 2.4500*10^-

15) using the above expression. To the 2-3 reported significant digits, this appears at first to be near perfect agreement, but we have no precise values beyond that reported. A 10% level of agreement with general relativity is claimed, but clearly we can use the viscosity equation to get the correct result as well as the classical Doppler equation if we use a lower value of "c" instead of c and corresponding to a decrease in light velocity coincident with frequency. The point is that if the v+/-c model is used and a non local calculation for v-c corresponding to classical Doppler effect, then we need not bother with relativity. Alternatively, we can say that the experiment verifies the viscosity model and not SR, which incorrectly claims c to be constant. A third alternative is to use the light speed increase predicted by GR over the same difference in height, but pretend that it's a negative value. Any of these methods will yield the same result shown by wiki.

With starlight deflection, we see only the "slowing" of the beam at the far end of its path due to clock speed effect (the light path accelerates as it rises), while with Pound-Rebka, we see only the frequency shift between two points as the beam traverses a gravitational field gradient (the light beam slows over the same path). Put them together, and the two effects cancel any change in light velocity along the path, as well as anywhere within the set of points of any plane which is coincident with a uniform set of gravitational potentials as the path is traveled. Note that to obtain the answer, we used the same general viscosity formula for KE derived in Section 10, except that for a massless "particle," we use g rather than intrinsic maximum velocity between two potentials. Not relativity, but it works just fine. From the KE change, we easily find the shift in wavelength, and since we aren't playing relativity, we could say that the beam lost velocity. But we won't, because the clock speed increased as the wavelength increased, so that the beam itself experiences no net change. Going by clock speed, the velocity of c increased as it gained height, but going by wavelength, it lost velocity. If you care enough, I'll provide more details on the calculation if you don't get it. For complicated and difficult, labor through the relativistic wiki page first, then you'll probably like my method...

For starlight deflection as viewed remotely, however, the same two effects do not cancel, but are cumulative. The speed of light both increases and decreases in opposite ways depending on whether this must be inferred from frequency shift or time delay. Thus, a blueshift as light approaches a (stronger) gravitational field is an indication of increased velocity as its energy is increased, while at the same time, a time delay provides indication of a decrease in velocity to the same degree. As the beam departs the point nearest the gravitational source, its velocity begins to increase due to quickening clock speed, but decreases due to redshift. Thus, c is constant along a path of its own course (but not between source and observer). For any speed of c to be cited, it is only meaningful when these conditions, which clock and which point of observation, are explicitly provided by the scientist, a traditional requirement for true scientific work that has been suspended for physics ever since Einstein, though most of modern science is also riddled with ambiguities that dictate what flip needs to be advertised to generate the biggest corporate profit.

If then, light is slowed when escaping a field by the Newtonian estimate and a matching Doppler redshift, but the clock rate increased along the same path, then it would still be measured as a constant c all along the path between those two points. Likewise, the slowing of light speed cited by the relativists for a wave front in the opposite direction (approaching a gravitational field), is the contrary inference for clock speeds, but requires a frequency shift in the

opposite direction to provide a constant c. All along a local path, the value of c remains constant, but from a distance the slower clock speed is measured as a increase in c and a corresponding increase in clock speed is reflected in a red shift, a decrease in c. Remember that with starlight deflection the frequency shifts are not observed since a blue shift on approach to the sun matches a red shift when it passes center. After passing, the frequency is the same, but the time delay on approach to the sun adds to the time delay on exit. Therefore, the value of a local c changes in one direction due to Doppler effect, but this is precisely countered by the opposite change owing to a different clock rate. The time delay as seen from a remote vantage indicates a slower value for c as Einstein himself pointed out without giving specifics. It does NOT mean that observers in relative motion to each other will measure all light as having the same velocity, although if they use only local clocks and distances, they certainly will. This concept requires some meditation, considerably more after being indoctrinated with relativity, but with care it will sink in.

Nevertheless, it is a necessary fact that at the lower elevation a clock runs more slowly than at the point where the measurement is taken, and associated changes in physical constants are real, even though only a function of definition. The difference in clock speeds results in a higher velocity as the beam races away from ground level, while the lower velocity indicated by the Doppler shift cancels any velocity change on the ride up; but this applies to the local path alone. A constant value of c is perceived locally, just as for the deflection of starlight but which yet slows down for the remote observer using his faster clock. Nor is it proved that all frequencies have a constant velocity (in vacuum), they almost certainly do not, though the differences are not yet measurable. However, an observer in a weaker/stronger gravitational field will perceive a time delay/acceleration for the path of a light beam. This could be interpreted as a slowing/acceleration of the light wave front, and indeed so it appears, except that the opposite effect would be observed by an observer in terms of a Doppler shift, such that anywhere along the beam's path there is no such change. This is how the distinction between a "local" and a "remote" frame (should be) is made (here), and not the artificial construction of inertial frames that Einstein cursed us with.

For objects of mass in free fall, there is also no local change in velocity to/from a gravitational source as the object approaches, but there is an increase in velocity relative to fixed points outside that path. Because this velocity change is slow compared to light, by which distance and velocity are fundamentally defined, changes based on these comparatively small velocities will be very small inasmuch as the correction factors between frames are relative to a fixed definition for c for all gravitational potentials. Indeed, the time interval can be estimated to a high degree of accuracy by jamming the square peg Lorentz expression, square root (1 minus v^2/c^2), into a round hole. It may match the experiment, but the procedure has no legitimate rational purpose and in no way confirms relativity or a constant c. In other instances it will fail. But the ether model and equation I've derived earlier provides a rational and correct progression, and its replacement of c with a maximum ether resistance inherent for the type of matter being accelerated will give far better accuracy with more precise measurements.

The subtle difference from the Lorentz expression is that v is the peak velocity attained during an acceleration or deceleration (or the equivalent g force between two gravitational potentials with v being the velocity of impact), while for objects of mass, the Lorentz or Einstein concept of c must be replaced with a maximum velocity for a given mass due to ether resistance, not an abstract spacetime. Also unlike relativity, this does not mean that velocities in excess of

c are prohibited, it only means that gravitational effects or acceleration / deceleration equivalents will entail simultaneous changes in all physical measurements as they depend on a fixed unit of time. It is difficult to imagine clocks that run backwards and lengths less than zero, but the maximum velocities described here do NOT pertain to relative uniform velocities as Lorentz and Einstein cast them, but only to initial bursts required to bridge gravitational potentials or the kinetic energy released by an object in free fall. Travel in excess of c is certainly possible just as it is for the sound barrier, but time travel not.

But the deflection of starlight is much more difficult than the Pound-Rebka problem due to the need to integrate the change in field intensity over distance, in effect + to - infinity. At least half of that is still bare bones Newton without any Doppler consideration because the distant viewer sees only the approach and departure after the ray passes the sun. At first, Einstein's estimate was exactly the same as that published by Soldner in 1804. Einstein hadn't just duplicated the same train of reasoning, but copied Soldner's paper word for word, so it has been said. Very deliberate, and all of this claimed in the name of general relativity? How does one trust the judgments of such a man, if true? He was already well known for blatantly plagiarizing his contemporaries and not thought well of for such behaviors, so it is not safe to assume that Einstein deserves credit for anything other than being a master forger. A public scandal brewed. And then a ticker tape parade for Einstein? On Mr. Einstein's behalf, the severity of such judgments may not be warranted, but then neither are the complications of relativity.

For reasons he never made clear, Einstein exactly doubled his prediction just prior to the famous expedition led by his friend, Sir Eddington, who was able to validate Einstein's prediction, but only by taking undue liberties with raw data prior to publication as it turned out. There simply isn't any question that the data were unduly skewed, not that gravitational time lag is not real. In any case, that handily defused the plagiarism scandal since Soldner hadn't gotten it quite right, anyway, so it seemed, but only Einstein by some miracle, and hence Einstein gets handed credit for correcting Newton, not a true representation of the facts unless they were to depend on extraordinary reasoning. The instant fame and publicity was so intense, in fact, thanks to media hype, that Einstein was never obligated to explain that he hadn't in fact corrected Newton, only added in a previously unanticipated vector. Even his own equivalence principle hadn't shown the doubling effect. He had managed only a slight addition to established fact for reasons either unclear to himself or deliberately obscured, if a proper distinction mattered. I do say this with conviction, though I'd have never thought of it before contemplating the Einstein issues, that the slower clock speeds are consistent with the requirement for conservation of momentum for a light beam, and that the matter can be easily deduced. Perhaps not so easily for most of us, but it's there. I believe Einstein had arrived at this simple algebraic explanation and agree with Essner that the construction of relativity was a swindle constructed in part to account for the lack of an adequate physical model. For that, I submit the idea of gravitational ether viscosity owing to the deflection of ultra fine ether particles in random kinetic motion. The concept is almost exactly the same as Brownian motion, except that matter is not bombarded by molecules but instead thoroughly permeated by a large number at high velocity whose kinetic motion is slightly deflected by soft glancing collisions with atoms . The few ether particles that are deflected result in an internal medium that is more sluggish; hence, gravitational force directed towards the centers of bodies of mass.

But what was different about this observed starlight deflection? Shouldn't the Pound-Rebka result also require a two fold adjusting? Apparently not, but why? Note that all measurements in Pound-Rebka applied at the source, otherwise known as local, but if local, why a frequency shift countered by a Doppler shift? Doesn't that imply a non constant c? There is NO other possibility than that half Albert's prediction was owed strictly to Soldner, and not in any sense general relativity, and was nothing but simple Newtonian mechanics that Einstein had tagged something onto. But what? Under close examination, the starlight trick was nothing but an unexplained fudge factor, and in no way explained by GR, but it had something to do with a time delay caused refraction as light was seen to slow down on passage near the sun. Who would ever know the real source of that slowing, since the just in time gimmick allowed Einstein to escape the plagiarism charge and falsely claim credit for the whole banana.

Nobody has since even dared question all this, lest they be fired and disgraced like Marmet, but here is the simple answer. As for Pound-Rebka, a strict definition of local should pertain only to any instantaneous measurements coincident with the path of a photon (wave front) as it travels through the change in height or to any motion within a fixed gravitational plane where clock speed remains constant. That, and not observers at either end, gives a constant c. The slowing of light near gravitational fields is due to clock speed as influenced by ether viscosity, and the slower clock speed causes length to constrict along with parallel changes in all physical measurements; hence, these changes are NOT measurable in a local frame properly defined as any plane where all points are at a single gravitational potential. This is ALWAYS true for a point moving in any direction, and also true for any set of points in the (curved) plane containing the set of points with the identical gravitational potential. This concept of such a plane should replace Einstein's meaningless concept of inertial frames moving at uniform velocity.

Einstein's general relativity, GR, an explanation for the workings of the universe? Hardly, however, Einstein somehow knew about the previously unknown simple matter of variable clock rate and the resulting gravitational refraction, and then used a situation to twist that into a complicated spacetime scheme in order to grab major credit that he certainly did not deserve. This was the result obviously planned before the Soldner plagiarism. We only have Einstein's casual response that GR says it should be doubled (while yesterday it didn't)... the first half of the gravitational deflection is also based on the same mechanics as the Pound-Rebka demonstration, the second half is nothing weighty, just a time delay due to ether viscosity, Einstein's specialty, NOT patent clerking, long before he became suddenly famous. Is that how he knew? Who knows? But a medium of variable viscosity, due to random kinetic activity, and coincident with a gravitational gradient perfectly satisfies both the inverse square law and the extended effects of variable clock speed and starlight refraction.

Here you will find for the first time this correct and simple explanation for the starlight phenomenon and anything else for which relativity has been used to make a false claim for discovering. But I do not hope to find acclaim, only the satisfaction of understanding the world I live in. A few also could enjoy knowing how the scam worked and what the truth is behind the relativity veil. To think that what most people perceive as the pillars of modern science turn out to be a cheap trick, a transparent ruse that turned a two bit con artist into the greatest scientist of all time. Yes, I am shocked at myself for being so blunt about the matter and disparaging towards our honored scientists, yet beg the

reader's sympathy in that the dignity of man and science are served better by well deserved revisions when needed. Professor Dingle explains this well enough if you will take the time to read his small book on special relativity. The mainstream consensus that the fallacy was Dingle's really is not an adequate explanation, but a diversion. It is not hateful to point out such an unfortunate error, though it is unclear whether Dingle's single minded pursuit ends up being anything but a great comic statement on the absurdity of human existence.

"In real life it is fraud that unhorses true valor." Sancho Panza in The Ingenious Hidalgo Don Quixote of La Mancha

Then only after writing most of this section did I discover that the Hafele-Keating data, erroneously used to validate SR, but which instead only verified clock variation in gravitational fields, turned out to have been a blatant cook job (fraud), as had Eddington's original starlight deflection data that got Einstein the ticker tape parade in New York had in fact been heavily doctored after the fact. The truth is that there really are very few precise measurements or sophisticated experiments that really verify anything about relativity or Einstein's predictions, and those, including GPS, can be readily found not only not to do so, but to prove the opposite if anything. Of those who still insist that there is a mountain of data confirming SR and/or GR, none of them is able to cite one that has not been discredited by men of strong academic caliber and remarkable professional achievement. The holes are impossible to spot for the untrained mind, yet impossible to miss for those who have been adequately educated.

The unfortunate truth is, and one no one would wish to be true, is that SR and GR are both an awkward fit, with GR a hasty attempt to gloss over the embarrassingly irrational basis of SR. The starlight deflection sequence of events was the last of many bits of solid evidence that could discredit Einstein, but at least we can preserve the possibility that the slowing of clocks and a constant c along a local path were realities that his tuition nearly grasped. There was still a possibility that Einstein knew something or at least possessed a dim faculty of intuition, even after the absurdities of attempting to make simultaneity relative and asserting a constant c irrespective of the relative motion of source and observer. But after finding that Eddington himself had unlawfully tinkered with the starlight data, even the hopeful possibility of slower clock speeds awaits solid experimental demonstration, though as we have now seen, the truth of this is only a necessary inference based on the way measurements must be defined IF we can accept the experiment basis for frequency shift that seems to have been verified well enough by Pound and Rebka and the delayed interval for light passing distant bodies. No, experimental verification is nice, but time delay should be a good logical deduction without it. The slower clock rate is all that such data prove and not the wide range of artificial constructions called relativity.

Then let us consider some of those sources that claim inconsistencies in Einstein's use of the Lorentz transformations. Ricker points out numerous specific errors and inconsistencies between Einstein's own 1905, 1907, and 1910 papers on special relativity (SR):

"it is important to understand that the clock paradox arises from the 1905 version and not the 1907. The 1905 version clearly states that a clock at rest set in motion then brought back to rest runs slow. This is the basis of the clock

paradox. The 1907 version is incompatible with this interpretation because it is clearly assumed that the clocks in the moving frame always run at the same rate as clocks in the rest frame. Consequently Einstein dropped this conclusion from the 1907 and 1910 papers on relativity."

But he did factor in Lorentz adjustments for clock speed in the later versions of SR for predicting gravitational effects. A key to the swindle is that while the Pound-Rebka experiment is considered validation of SR, these local measurements do not mention clock speed, they only insert the Lorentz adjustment without good explanation.Like many cited as validation of GR, they are only examples of classical Newton where time delay perceived by a remote observer is not mentioned. This is a subtle distinction and takes some time to understand. The deception is that Einstein's SR and GR are claimed to overrule Newton even when Newton's laws do just fine. Einstein seems to have succeeded in discovering that for a remote observer in a comparatively negligible gravitational field, an additional time "dilation" effect would impose an additional refraction in the same proportion as Soldner's. Both were driven by the same gravitational influence, one by the "pull" of gravity, and the other by the gravitationally dependent ether viscosity that causes the local clock to slow relative to the remote clock. In the case of Pound-Rebka, the change in clock speed between elevations is customarily taken, it would seem, to negate a change in the velocity of light despite the claim of a red shift in frequency. The correct interpretation is that, yes, the clock speed does change with elevation, and this ensures a constant value for c through that distance, but that is ONLY along the path of the moving photon with respect to its own instantaneous clock speed, but NOT as measured at the point where the red shift is confirmed with respect to its origin. The frequency shift is velocity dependent just as the Doppler effect used by Pound and Rebka to counter it.

Einstein duplicated Soldner, then he added a factor of 2 just prior to the expedition that highlighted the difference between Soldner and his own prediction. Perhaps there was no plagiarism, but we're left without an explanation for his own many inconsistencies. Later, he seemed to have plagiarized Hilbert's spacetime equations for the publication of GR, a deliberate garbling by both Hilbert and Einstein of the real mechanism behind the mechanics of gravity, ether mechanics and variable clock speed. Einstein's best work was in viscosity, he should have grasped the truth easily, but a correct explanation of the deflection of starlight would have stripped him of any fame or originality, along with Poincare and Hilbert, we might add, though Lorentz seems not to have been in on the joke. Indeed, Lorentz aptly remarked something to the effect that Einstein's relativistic take was too artificial and of little value. Soldner's solution to starlight deflection is essentially based on the same mechanics as the Pound-Rebka experiment, but involves an angled trajectory seen from afar instead of a vertical change in height at the point of measurement. Starlight deflection is still the result of simple Newtonian gravitational acceleration/deceleration causing a blueshift on approach and a redshift on exiting a field, similar to the frequency shift per Pound-Rebka, but only for measurements in a comparatively negligible gravitational field will the difference in clock rates require a doubling for refraction and time delay effects observed from a remote vantage. The Newtonian/Soldner procedure gives 1/2 of the starlight deflection, simple time delay (reduced clock speed) as the light passes near the sun's surface will double that. Very simple. No relativity needed to explain anything, never, not anywhere.

That Einstein doubled this figure that he had blatantly plagiarized, without detailed explanation, and this just prior to the expedition that resulted in his ticker tape parade is adequate to consider GR a hoax. His sources or reasoning for the doubling may never be known. Hilbert's equations for spacetime, then credited only to Einstein, and that seem not to really predict anything in either real space or real time, are simply imaginary constructions that serve to obscure any rational mechanisms and intimidating those who might challenge their validity inasmuch mainstream physics has chosen to consistently and unjustly validate them. In the first case, and all that followed, relativity would have predicted nothing better than Soldner's straightforward derivation, which was identical to Einstein's initial version of GR. That's the truth that couldn't be told at the time if the illustrious Einstein / Poincare / Hilbert trio wanted to be famous. If 100 years later we can have confidence that Soldner was off by a factor of two, then all we need really wonder about is what led Einstein to that prediction, and not that it was predictable on the basis of any private insights embodied in any theory of relativity.

It becomes also obvious that the Hilbert / Einstein equations were contrived to conform to a finite, expanding universe, making use of the premature inference that spectral redshifts were due to recessional velocities, hence also the Big Bang. There is ample proof now that these shifts are not due to recessional velocities, especially inasmuch as we are not talking about the ordinary Doppler kind of velocity effect, but rather a simultaneous expansion of all matter from a single point. This kind of redshift and the Big Bang are air castles. Ample data proves that most such redshift can be accounted for by other means and that in terms of Doppler there is as much blueshift as red. But these facts must be denied by modern physics, which has drifted too far out in space to make a return to reason possible.

The Hilbert-Einstein equations were not derived from experiment nor do they truly describe reality, nor does any evidence exist that they were used to predict the proper value for the deflection of starlight that gripped the public's attention. They were slipped in after the fact to avoid a rational explanation and to claim credit for an extended, capricious claim about the structure of some mythical land called "spacetime" and an utterly absurd notion called the Big Bang too hastily inferred from the shifts in spectra from remote galaxies. A straightforward, rational explanation would have failed to give either Einstein or Hilbert any credit for any remarkable discovery. How simple should it be? If you can follow Soldner's derivation in principle if not in detail, then realize that a time delay caused by gravitation could bend the path further and in the same proportion as it had first been influenced by the Newtonian principle, then you'd have done better than Einstein. The ten complex tensor equations called spacetime have never served any purpose other than to justify expensive and useless research into exotic notions that kindle the religious intuition for a creation event but reserve its origin to blind cosmic processes.

Einstein's potentially legitimate contribution to the starlight prediction was only that there was not one, but two vectors influencing starlight deflection. It would not be surprising then, instead of the ten differential equations of spacetime that so very few of us can fully comprehend, that the simple factor of two for the still unrecognized gravitational refraction of starlight is only what catapulted Einstein to fame, and not the Hilbert-Einstein spacetime equations which have contributed nothing whatsoever to legitimate science other than to bury it in meaningless dogma. Einstein may have also had some prior observatory data to help guide him in the starlight prediction, but the

source of that inspiration is still a mystery, at least to myself. Meanwhile, we can only hope that the Big Bang be forgotten, and the real origins of intergalactic frequency shifts be acknowledged and explored.

The second dispute over credit for the worthless Hilbert-Einstein spacetime equations was required to embed in the public mind that this fraud was not a personal invention of Einstein's, but rather the golden treasure hidden at the end of a rainbow in hot pursuit by men of rare genius. The debate revolved around the defacing of Hilbert's original printer plates such that the ten tensor equations were erased, leaving the impression that someone wanted to discredit Hilbert's own publication of the tensor spacetime equations five days before Einstein's. Who else, of course, but Einstein or one of his own could be behind this evil deed?. The truth is that both Einstein and Hilbert, known collaborators, were playing the public like a harp.

I've never been an expert in politics and find it all most unpleasant, but it's clear that these claims about Einstein's plagiarism are true, even if politically malicious. What the site does NOT do, however, is recognize the real hoax, that the plagiarism was deliberately done, not to take proper credit from the original authors, but, excepting Soldner, to enable Hilbert and Poincare (and even Lorentz) to jointly take credit using false solutions for the entire past, present and future of physics. Even the Jew haters were fooled. This backdrop of confusion and vying for first place built the necessary hype while preventing straightforward inferences needed to modify Newton for clock speeds that vary in gravitational fields and by consequence affect all other physical measurements. The reigns of science were then usurped by an irrational clique, abandoning sound reason and requiring instead blind adherence, the keys of real science stolen. The fangs of fascism are since embedded far more deeply into the human psyche than Hitler could have imagined. A bigger and meaner dog than Hitler yet lurks amongst us. But let history warn against fighting fire with fire, not that such warnings will succeed.

Then if Einstein's Soldner and solar deflection tricks were a key condition for the relativity hoax, let the Pound-Rebka and Hafele-Keating experiments remain solid evidence that the same hoax is being perpetrated 100 years later. Consider then, might not ultimate and sustained and undeniable proof of this hoax remain lurking in an overlooked inconsistency between the GR solar deflection as claimed by Einstein and his own equivalence principle (acceleration / deceleration produce the equivalent of gravitational force)? If Einstein copied Soldner word for word, then GR is fundamentally a plagiarism of Newton, not Soldner, and if the GR fraud veiled only by a meaningless fudge factor, then if the equivalence principle were to match only Soldner's prediction, that would provide certain proof that relativity was a hoax. Do the calculations for acceleration also give twice the Newtonian answer? Or did Einstein forget to factor that in? Before attempting what is likely a very difficult derivation, what a wonder! We see that Marmet has already taken the trouble to check that result, a complicated derivation that I wouldn't rushed into, but had already guessed. Read it here and weep. If only Einstein hadn't forgotten to slip in a factor of two for acceleration in accord with his own equivalence principle, the deception might not be so well bared. Marmet saves us the trouble of checking. Relativity was a hoax.

Marmet also independently of GR derives the same prediction as Einstein's GR for starlight deflection, 4MG/rc^2, or 1.75 seconds, about the same as Eddington's expedition reported, and goes to the trouble to find a non GR solution. I only assume he relied on a time delay factor. None of us know how Einstein's GR factor of 4 got there, and I haven't in this case gone to the trouble of verifying Marmet' s derivation, though another would serve if that one failed. I can easily verify that Newton is all that is required in some cases, but this one is a bit steep, and why duplicate Marmet's good effort? Marmet has more prestige, though I suppose I could, but no one is going to pay me and I'm enjoying retirement. Perhaps at a later date. I can well guess, however, that Marmet arrived at his result by taking into account gravitational clock speed, not that difficult, really, at least that is the approach I'd take, and I'd hedge no bet on being able to touch home plate. On numerous other grounds as well, Marmet makes it obvious that GR is nothing but Newton or that the results require some adjustment for clock speed, nothing more, though I balk at some of the things Marmet claims. Einstein and his peers succeeded only in sucking the entire human culture into a black hole, nothing more.

Now, going in for the kill, again, repeating... let us restate the matter of the equivalence principle. Marmet's derivation of that is absolute death to relativity. Fully independently of Soldner, Marmet derives the same result as Soldner but only by using the equivalence principle. The result? It is Einstein's own GR prediction using the equivalence principle as only he derived it, but having omitted the factor of two, demonstrating beyond question that GR was indeed a hoax; otherwise, Einstein's derivation would have demonstrated that his own equivalence principle would give the same correct starlight prediction, but it doesn't, it's off by a factor of two. Einstein's own equivalence principle proves that the factor of two was simply a viscosity correction, likely not known even to himself given his history of flagrant plagiarism, and not a feature of general relativity or the meaningless Hilbert / Einstein spacetime tensors. And what if I'm wrong, Marmet did not cite clock speed as the key for his own derivation of starlight deflection? Then let the reader pretend I said nothing about it!

How could the entire world be so thoroughly taken in? Marmet approaches the equivalence principle for the starlight deflection case by assuming an inertial acceleration of the sun equal to g at the surface (radius r), and then finding the matching angle of deflection. Unlike the famous Hilbert-Einstein relativity formulas, I can follow Marmet's derivation, which though arriving at the same result seems like a different approach than Soldner's. Even Soldner's approach would not be for the meek, but to peg the right numbers independently of Soldner is a respectable feat. Marmet's result using Einstein's equivalence principle is 2 MG/rc^2, like Soldner's, exactly half the confirmed result, arriving at the identical formula, which is exactly the same as GR up until the point where Einstein decided without explanation that GR says the 2 should be changed to 4. So, not long before the expedition, Einstein was still predicting the same as Soldner, then he changed that to double just in time, but he forgot to apply the same correction factor to his own equivalence principle so that it would match. Whoops.

This difficult derivation by Marmet also shows the equivalence principle, like Pound-Rebka, to be vanilla Newton, results which Einstein claims to be the result of GR. What does the equivalence principle really say per Einstein? It says only that acceleration will produce the same effect as gravitation in accord with faithful Newtonian mechanics.

Marmet shows that well, but Einstein forgot to include the correction for clock speed. I haven't examined it carefully, so let the reader determine in his own mind that Marmet used a variable clock speed to arrive at his answer. Don't forget to let me know.

The Pound-Rebka example also proves only Newton and validates nothing about GR, while what is meant by a constancy of c that might have validated Einstein is omitted from any explanation of the results that I've been able to dig up. An additional 2x term is not needed, because frequency shift is measured instead of starlight deflection, and no actual velocity change for the light beam is considered, only the crystal which is accelerated to produce a blue Doppler shift. That measurement of c is constant seems to be an unqualified assumption without carefully qualifying which clock speed and distance used to define c are used, those at the lower elevation or those at the higher.

To maintain a constant (local) c along the beam's path, it must be assumed, if not verified, that any velocity dependent frequency shift is canceled by the greater clock speed at the higher elevation. This does not negate the fact of a velocity drop, c-v, between the two elevations, it only affirms that measures of c throughout any uniform plane of potential is always constant. The other effect of stronger ether viscosity is to double starlight deflection through the slowing of light as measured from any point on an external frame (at lesser gravity) where the clock speed would be greater. The same clock speed change cancels changes in c itself and other physical quantities as they would otherwise be perceived along any local path through a gravitational gradient, and that can be taken as a correct interpretation of Einstein's first postulate, that of conservation of mass and energy, but not from one inertial frame to another, but from one gravitational potential to another. While unit values do change between potentials, they are covariant and balance is still achieved.

It was only ever true that Newton's laws failed to take into account the effects of variable clock speed for differences in gravitational potentials, because this causes measuring instruments not in motion with the frame of interest to vary with what "local" measurements along the path would give. Oddly enough, it is measurements outside, but transparent to, the local frame that reflect real differences. Such is Pound-Rebka, and so is the deflection of starlight, but then just multiply Newton by two because the two effects add for deflection instead of canceling each other. If gravity makes me swerve by x, and if the viscosity increases with gravity, then I will swerve by 2x. This is why, despite the very intimidating armada of Hilbert equations and circular reasoning used to defend GR, that I can state with confidence to have the proper solution to the GR dilemma. It is not a difficult one and even has a rational, physical basis as opposed to magical shifts in imaginary frames. The mathematics is not difficult and provably more accurate than the twisting used to make Einstein's nightmare fit.

I will even dare call it the Unified Field. While restricted to only the barest fundamentals, it yet paves the path towards more certain and reasonable knowledge of how the universe operates. We have an omnidirectional, high velocity ether similar to Einstein's Brownian motion aquarium, with a heavy external bombardment of kinetic energy that increases viscosity when in the vicinity of larger particles. This is the likely source of the so called background radiation, nothing but the bottom line temperature for random ether activity. This simple, ether viscosity model is

vanilla viscosity, predated by Einstein's own PhD thesis on diffusion and viscosity, a perfect explanation for the correct prediction of starlight deflection that catapulted Einstein to fame, but one which would get him nothing near the worship of his imaginary spacetime.

Here are some remarks on Einstein's PhD thesis:

Einstein earned a doctorate from the University of Zurich in 1905 for a thesis "On a new determination of molecular dimensions"... Before Albert Einstein turned his attention to fundamental questions of relative velocity and acceleration, he published a series of papers, starting in 1905, on diffusion, viscosity, and the photoelectric effect that would have ensured him a considerable reputation even if he had not later created the Special and General Theories of Relativity. His papers on diffusion came from his Ph. D. thesis. Diffusion had been studied extensively by that time, but was described in a completely phenomenological framework. Einstein's contributions were to propose:

1. That Brownian motion of particles was basically the same process as diffusion
2. A formula for the average distance moved in a given time during Brownian motion
3. A formula for the diffusion coefficient of a substance in terms of the radius of the diffusing particles or molecules and other known parameters (viscosity)

Einstein himself invented some of these groundbreaking viscosity equations where a deeper look would provide us with a much better understanding of ether mechanics, or at least as claimed since it was well established by peers that he was a devout plagiarist . But I will not attempt to explain my own ether model beyond this short discussion, which should be adequate even to explain a steady state universe. If I ever take it further, there's little doubt that I could make good application of Einstein's prior work in the general field of Brownian motion and viscosity. But popular science is not receptive to those who adhere to common sense, and I'm hopefully retired after living through 50 years of Montana. Do rest assured that the correct answers are HERE. And that the earth accumulates mass? An unavoidable consequence, Watson. Absolutely. Would Einstein have been able to deliver the same ether model using viscosity and random movement that I have done here, rather than the nonsense that gave him immortality? Absolutely. Is a Big Bang necessary to explain why the stars haven't fallen in on themselves? Not at all. Is there such a thing as spacetime, where space and time have expanded from a single point? No. Time is nothing but an intrinsic feature of physical measurements, not a fourth dimension.

Though the mathematical complexities of physicists are often difficult to grasp, relativistic juggling is particularly slippery and fraught with circular reasoning. All seem to agree that time dilation (more properly referred to as slowing of clock rates) produces no local velocity or frequency effect as does ordinary gravitation, but remote observations will measure a delay, not unlike the familiar refraction as light enters a denser medium. Careful examination reveals a gradual retreat from special relativity by Einstein as he gradually deferred to an ether and gravitational effect on clock speed. Refraction by glass or water does in fact produce exactly the same effect, not by virtue of a slower clock which has no local effect, but by the local slowing of light velocity. Gravitation as anyone observes will cause upwards

traveling objects to slow or light to bend or slow slightly (in terms of frequency, or the reverse), effects measurable only remotely, not locally, and as in both the Pound-Rebka experiment and the deflection of starlight by the sun. The slower clock speed in passing will cause a deflection equal to and in addition to Soldner's estimate, observed remotely along with a time delay. That can be explained by a more dense ether with slower random kinetic velocity coincident with gravitational field strength. A similar refraction occurs when light enters a prism, that not being due to slower clock rate, but the effect is from the velocity of light being locally reduced on entry to the glass.

Why does a more concentrated ether in a gravitational field slow clock speed in connection with a slower rate of passage for light, while glass does not? Simply because the ether is the ultra fine fluid through which even electrons and protons move, even the material through which light waves themselves are propagated, while glass or water simply offer resistance to light waves on the molecular scale by partial deflection or absorption. When the high velocity kinetics of ether particles are shielded by partial resistance from particles of measurable mass, they are slowed towards the interior, thus fluid viscosity is increased and the rate of transmission of light reduced as it depends on the kinetic activity of the fundamental medium. It is also likely a matter of consequence that slightly more particles enter the field than are freely allowed to leave, giving a difference in fluid pressure that could well be responsible for the formation of different elements. The continued release of random thermal energy as entropy is surely also largely responsible for the intense heat at the core of massive objects. This could be compared to the more obvious action of an osmotic pressure gradient for fluids like water. I consider this proof of a growing earth model since there are no adequate alternatives, but very sound work by prominent physicists demonstrates that all existing matter was NOT created by a big bang, but that the observed ratios of elements in the interiors of stars accounts for their formation there.

In the more familiar case of gravitation, light slowed by clock speed and bent towards the normal, is also accelerated on entry in terms of blueshift as for any object with the shift again towards the normal. In each case, the accelerating affect identified by Soldner and the coinciding slowing effect caused by reduced clock speed, contribute the same degree of deflection toward the normal as measured from a "remote" (different gravitational) frame, hence double the value found by Soldner in his paper. The same effects are indeed there for all objects of mass as well as light, but the portion of deflection owed to time delay for objects of mass is far less, almost negligible. Only for a very light, high velocity particle like the muon would it be noticed; therefore, yes, again, Einstein's prediction of the muon's path in the earth's atmosphere is not validation of his own relativity, it is nothing but another example of clock speeds running more slowly in a gravitational field. These effects long preceded any claims made by relativity, half being accounted for and published word for word by Soldner in 1804 and again by the name of Einstein, who should have had no use for it whatsoever if GR had a rational basis of its own. No one ever contested the plagiarism, it was not defensible, but gave the impression that Einstein had absorbed and then improved on Soldner's own work. The prediction was only later changed without explanation, also by virtue of and in the name of general relativity, just in time to duck the pending plagiarism charge and see GR validated by the world famous expedition and punctuated with a ticker tape parade. That's a very odd sequence of events.

I submit, February 2010, that Einstein knew that the time delay effect in starlight deflection was a simple matter of ether refraction, especially given his own outstanding work in viscosity and Brownian motion, but that he substituted the overly complicated overhead of the Hilbert equations in order to let GR and Einstein falsely take credit for what was already well known per Soldner or otherwise easily deduced from simple refraction due to time delay. Einstein's unexplained switch to the factor of 4 instead of the 2 that his own equivalence principle would have given is proof that Einstein used the plagiarism charge to line up the gimmick.

The timing of this trick permitted the deception that relativity supersedes Newton. In reality, the Soldner calculation per Newton provided half the required prediction, while the other half is properly accounted for by simple refraction due to greater ether viscosity and slowed clock speed. Special and general relativity were artificial constructions based on deliberately faulty premises meant to claim undeserved credit for a faulty theory. They may be used inappropriately to match measurements based on variable clock speeds, but they have no rational premise and fail to match data beyond a few digits. Disclosing the straightforward and proper mechanisms of viscosity and variable clock speed that attend changes in gravitational potential would have left Einstein without claim to unique insights.

However, there is the far scarier possibility that Einstein and his peers implicitly believed their own collective imagination. In any case, there is no doubt that Einstein, Poincare and Hilbert gained credit for the work of others by reformulating their logic in a confusing way. This quagmire of irrational thinking exploited unusual social conditions. The political climate of those times and a public fascination with the unexplainable fueled the public obsession with relativity and later became the driving force for continued funding in astrophysics. Now, if you want a job in science, you must adhere to the party line, be a good hypocrite, and not practice science as it was meant to be. A good question is, just how long will human society be burdened by the requirement to reinforce illusion and also provide tax dollars to support a smelly crowd of phony intellectuals whose job is to perpetuate foolish myths?

Einstein, and no doubt Poincare and Hilbert, knew all along that a variable clock speed would double the deflection and that the delay in announcing this held in the crucible of impending public scandal, would give results for maximum public effect. The patent clerk image may have even been overkill for instilling an element of mystical genius. Divulging such simple knowledge as would have been required to explain the deflection would have left him with no serious claim to the secret structure of the universe. Whether put in terms of random particle velocity or viscosity, the answer is little different than the very familiar case of refraction by the slowing of light in glass, though in the case of ether the passage of rays is uniquely slowed by a fundamental change of clock speed itself. The result is NOT the constancy of light speed in inertial frames defined as uniform velocity, but only the constancy of light as measurable along the path it takes through a gravitational gradient from one uniform gravitational "frame" to the next. It must have been too much to bless the common man with such simplicity.

The defacing of Hilbert's printer plate was a subsequent forgery necessary to deflect questions about the multiplication of two trick and the true nature of this second source of deflection. It also further obscured the separate Newtonian origin of the first claim, leaving GR, backed by the world's most obscure math, fatal contradictions and

bizarre logic, with all the credit. But at that point, just this month, I yet knew nothing of Hilbert or the field equations, so, I started digging for the next charge of plagiarism that would give Einstein the peer image that a footnote couldn't. It didn't take long to find a book called "Einstein, the Incorrigible Plagiarist" that gives the most likely account of how this was done, not that there aren't plenty more. The issue was a paper by an associate of Einstein's named Hilbert. The paper was printed five days before Einstein's release of GR. The original printer plates were since deliberately defaced so as to remove the field equations that described the time dilation effects now known as the famous Hilbert-Einstein "field equations." Einstein's additional irrational logic did help distance his own claims from these sources in the midst of charges of plagiarism, but these involved the most thinly veiled acts and feeble objections, the condemnation only serving to tighten his grip on final credit. His blatant, word for word forgery of Soldner's work was not meant to go undetected. And whoever was so petty to scratch the equations off the printer plates? Good money says it was Hilbert himself.

The deepest level of deception was not the claim for work done by others, but the substitution of fantasy and even outright absurdities to explain real physical mechanisms properly explained otherwise. The objections to Einstein's piracy were most feeble. The result was a tangled mess that the world of physics may never recover from. Even today Stephen Hawking insists that Einstein's work is infallible and eternal, and the public eats it by the barrel. Nor does ALS, caused mostly by metal poisoning, affect only the body and not the mind in the experience of most. My own ether model would provide the same answers or better for starlight deflection and the perihelion of Mercury, but based on the very simple logic and straightforward mathematical derivation of the viscosity model, not Hilbert's, Einstein's or Hawking's. I have admittedly not been willing to suffer enough to derive all of the straightforward implications that flow from this rational model, but a comprehensive task would not be that hard. The Pound-Rebka solution was an easy five minutes, then I note that Marmet did the same, but I admit that I can't say how he did without the viscosity model. I think he simply seized on a v/c equivalent to Lorentz using his own rationale, but not a viscosity model. I did quickly scan Marmet's other papers, which I'd not bothered to dig into before this month, and found that he did an excellent job of deriving the original perihelion of Mercury solution in Newtonian terms and the Soldner deflection in his own way, as well as stripping relativity's claims in other areas. His very best trick was to show that Einstein's equivalence principle was off by a factor of two if used to predict starlight deflection, proving that Einstein himself did not properly explain the deflection by means of general relativity as he claimed. I'm not sure I did, either, I haven't sat down and given that one serious effort, but the explanation provided here in terms of gravitational clock speed with a viscosity model does resolve all relativity issues. I had zero knowledge of that one until early March, 2010, but then there's no ticker tape parade hanging in the balance for the great unwashed.

Let us emphasize these facts again. In Einstein's "moving" inertial frames, clocks run more slowly, length and mass also change, and c is constant between observers in relative motion. But these are not properly effects of uniform velocity, but instead a matter of uniform gravitational potential differences in gradients or their equivalent in terms of acceleration / deceleration. Einstein himself attempted to shift the focus from uniform velocity to gravitation with his GR, and SR is not a special case of GR as the history books attempt to say, only a first attempt that was botched. When clock speeds are understood to be slower at lower gravitational potentials, it is a necessary consequence that light will

slow down when entering a lower potential and at the same time experience a blueshift when observed remotely. Because local length constricts as a consequence of and in proportion to changes in clock speed, no local change in velocity is experienced. This concept, a bit subtle but not impossible, once grasped, brings one's focus and understanding into perfect clarity, and then all of the complexities and absurdities proposed in relativity may be safely forgotten and replaced with a good feeling of security. I suggest a yantra approach similar to one described below similar to the approach used for stereograms. A few minutes of meditation and bang, relativity is toast.

If you measure top to bottom instead, these effects are reversed. The traveling twin "paradox" is one of many examples of how this reality became badly garbled and then later abandoned by Einstein himself, yet still rabidly promoted by most scientists a hundred years later as a fact, while failing to take notice that Einstein himself had abandoned such reasoning. Note that due to the design of the Michelson-Morley experiment, source and observer turn out to be the same point, perhaps another way of saying that perhaps the average of a two way trip does cancel any one way effect. Indeed, it still would, if the ether velocity of concern turned out to be coincident with a uniform path of gravitation as in my own model. Otherwise, the constancy of c between observers in relative motion is definitely not true. A bad inference. Then what shall we say of the real data withheld from the public that showed real fringe shifts? We can say that the path of one beam was delayed by variations in clock speed due to gravitational effects, most likely the effect of the moon, the same cause for the starlight deflection that Einstein also used to prove general relativity.

The perihelion answer had also been published long before Einstein by a man named Paul Gerber, but Einstein's answer to the plagiarism charge successfully deflected the accusations. Einstein claimed that Gerber's derivation failed to give an adequate mechanism for the result, as if Einstein's did and somehow Gerber just made it all up. But Einstein's point seemed to carry sufficient weight to pass public scrutiny, even though he failed to identify a rational cause for his own version of time "dilation" or properly describe it as clock speed. Should we then wonder how Gerber came up with the right answer, while not having any notion as to the reason for it? Keep in mind, too, that the perihelion anomaly was not yet entirely resolved, since more recent measurements indicate that the answer is yet somewhat greater than either Gerber or Einstein predicted. That is because the speed of light is not the speed limit of the universe, and because the maximum acceleration for any body of mass between two gravitational points is somewhat less than c and depends on the nature of the mass. The perihelion solution must be cast within the viscosity model to be properly understood.

But in this paper, I provide straightforward answers, even if the concepts are somewhat subtle. In the end, exactly half of Einstein's relativity is explainable in terms of the familiar Newtonian basics, and the other covers simple effects owed to ether refraction from reduced clock speeds in gravitational fields. Owing to the manner in which physical constants must be defined, a change in clock speed requires that all, length, energy and mass change along with time for observers in different gravitational frames. None of this requires the complications of relativity, spacetime, or systems of coordinates, it only means that all measurements made in the same gravitational potential (more accurately, field strength), even when moving through a gravitational gradient, will remain constant throughout any

plane of uniform potential; however, they will all change in equivalent proportions from one gravitational potential to another as measured by observers in different gravitational (or accelerated) frames.

It might be helpful, if damning to the relativists, if the language of physics was tailored to avoid inflaming the masses with intrigue. The velocity of light is NOT simply a constant and never independent of the relative velocity of the source and observer. What does occur under conditions poorly defined by the relativists is that in gravitational fields, or their equivalent in terms of acceleration/deceleration (which feature an initial or final relative velocity, v), the rate of clocks is progressively reduced. I could add that the reason for a slower clock speed is the thickening of the medium of transmission (ether), not the exotic and imaginary switching of frames in uniform motion used to defend SR or try to resolve the so called twin paradox owing from uniform velocity that Einstein himself abandoned. Einstein should have known all this only too well. After tracing the history of events, it becomes clear that the muddled thinking he projected was at best a successful ploy used to widen the gap between his contemporaries and underlying reality, where reality had to succumb to GR and could be made to do so given the fractured nature of relativity once it was considered infallible. This leaves the common man powerless to contradict. After serious consideration, it is simply a feature of physical measurements that units of length, energy and mass must change along with clock speed, not that the effect is not real, and that while no such changes are perceived in the current (gravitational or accelerating) frame, from a remote vantage point (a higher or resting gravitational potential) any of these effects could be observed with the proper measurements. This perception is also comprehensible to any man of reasonable intelligence if allowed the opportunity to consider it without fear of criticism.

The famous twin paradox is also correctly interpreted as a fallacy in this way. Not even Lorentz, who was not the original author of his equations, either, considered uniform velocity as the issue, but instead attributed the effect ONLY to gravitation or acceleration / deceleration between two frames in uniform motion. At uniform relative velocity, clocks run at the same rate, all else being equal, as Einstein himself conceded in later versions of SR. If their rates slow, it is because they accelerate or decelerate. The v term in the Lorentz equations was properly meant to refer to the maximum change in velocity during departure and/or return, not an otherwise sustained interval between. The calculations give almost the same numbers, but Einstein's fails to provide reasonable understanding of the issue. The result of a slowing in clock speed is that length must contract by definition, resulting in a locally measured constancy of light velocity, all else being equal. So a constancy of c issue does at times apply, just not the version of source and observer as popularly promoted. Nor is the value of c the proper variable in the relativistic equations where not light, but objects of mass are involved. A slightly smaller figure that c should apply under the slightly different logic of ether resistance to objects of mass. I say this because the different atomic configurations of separate elements represent slightly different energies per unit mass, and these will offer different resistance to acceleration as well as slightly different mass. This contention has been born out consistently by levels of precision that show differences with Einstein's formulas, even though misinterpretation of the Lorentz equations permit a fudge factor that helps offset the errors. Measurements by the Space Lab at Pasadena will confirm that their measurements are consistently larger than what the Lorentz corrections can predict.

Emphasis: a change in clock speed causes all physical measurements to change accordingly by definition: velocity, length, energy (Planck's constant), mass. It is precisely such changes that allow the laws of physics to operate identically throughout fields of different gravitational potential, aside from the fact that gravity itself is stronger. During a change in velocity or increased gravitational potential, clock speeds will slow, lengths will contract and mass increase, but all local measurements along the path of those changes as they occur will remain the same; they are only different for points not on that path where the gravitational potential is different. When acknowledged by scientists, these points are usually referred to as "stationary" or "at rest" but this is a convenient concept, not strictly a requirement. The velocity of light will remain constant, also, though a frame at rest will indirectly see a slower clock rate in the accelerated frame and other physical measurements altered as a result. In this sense, the velocity of light is independent of the motion of source, at least within the local frame of reference. No frame of reference subjected to inertial or gravitational change will perceive such differences as they occur. However, measurements made of events taking place in that frame from another frame of reference that has not changed will perceive in the other the slowing clock rate, length contraction and increased mass. While local measurements are unchanged, events viewed at a higher gravitational potential will reflect them, usually in terms of the time delay from the sun's deflection of background starlight. It is important to note that changes in length and mass are real, but even though real, they are still only a feature of the way that measurements must be defined in terms of each other due to their dependence on clock speed.

Hence, these differences will not be measurable within the local frame as they might exist or as they might occur due to changing gravitational potential, thus the preservation of the laws of physics being uniform throughout, though not as a necessary feature of Einstein's first postulate in terms of inertial frames (uniform velocity), but rather in terms of changes from one gravitational potential to another. This is the ONLY valid and true explanation for such effects and NOT relativity. As for the popular notion that a constant velocity of light remains independent of the motion of the source, radar is the most common example of why that isn't true. The increased frequency as objects approach, or reduced as they move away, is a direct result of the change in relative velocity between the light source and the target, and this is well known as the Doppler effect. It is equivalent to a gravitational shift (Pound-Rebka experiment), but recall that no shift was detected in the Michelson-Morley experiment.

People may have different perceptions of a constancy of c, but c is only constant from the standpoint of an emitting source. It is not independent of the relative motions of source and observer. A way to think of this is the rail joints on a train. When the train is slow, you hear click, clack, click. When the train is fast, you hear clickity clackity clickity. The velocity of wave peaks in light as seen by a moving observer are perceived in the same way (Doppler shift). While all wavelengths of light travel at equal velocity in a vacuum, a Doppler shift still indicates a frequency shift in wave velocity between source and observer. The popular notion that all observers would measure a single beam as having the same value c is one of many seemingly impossible errors that are so entrenched as to effectively bar any path to a real science of physics or any real understanding beyond blind dogma.

The correct understanding may in fact have been too subtle for the great relativists themselves, and the hoax then unintentional, but the constancy of c is entirely a local effect and true only for all points belonging to a single gravitational point at any instant. In that sense only, it is true that light travels the same speed in all directions in a uniform gravitational field, and that any measurements made from one gravitational frame to another will not vary as long as they are made in the locally affected frame, even though they would from a remote frame. Given all that, the Michelson-Morley experiment would not be expected to show any directional influence on the velocity of light or any gravitational phase change inasmuch as the apparatus was horizontal to earth. Beyond that, by sound logical inference presented in this paper, the constancy of c being independent of source and observer is flatly untrue, and good data exists to support that.

It might be helpful to reconsider the Michelson-Morley experiment. Why should ether have a measured velocity as opposed to a variable viscosity characterized by the average random velocity of its constituent particles and which imposes variable resistance to motion through it? Einstein's better work was on Brownian motion and viscosity that dealt with exactly those concepts. Why did he fail to notice that these same principles applied, if only on a different scale? A particle in solution would perceive no direction in fluid motion, so why would an object of mass in ether? The fact is, it wouldn't, though the molecules in Brownian motion striking the dust speck are moving at high rates of speed depending on fluid viscosity, Einstein's native territory.

But the average kinetic velocity of ether, hence viscosity, does change in relation to the strength of a gravitational field due to partial resistance on the exterior surfaces of larger conglomerates, so the Michelson-Morley experiment, even if not being poorly designed, would not detect any such change when horizontal to earth. It should, of course, register a phase change when influenced by the moon, since even Einstein would agree to the idea of gravitational redshift, more properly a simple Newtonian effect, and which Pound and Rebka later proved so well if they did not cook their results as happens so often. Likewise, the Michelson-Morley experiment did not attempt to measure c between source and observer in relative motion, or it would have not found it constant. A phase shift would occur, just what the patrolman relies on when making out your ticket. Different wavelengths (colors) of light travel at different velocities when not in vacuum, not to say that any of them are immune from velocity dependent frequency (Doppler) shift, and in fact they are probably not constant in the so-called vacuum, either. The differences are simply too small to measure using existing technology.

White light being a mixture, entry to a new medium causes a new velocity for each and thus the different colors separate. A red beam with a velocity of c from its source (a radar gun uses non visible rays) also becomes "redshifted" when intercepted by a car moving away from it or "blueshifted" when moving towards it. Light speed is firmly dependent on relative motion. In a gravitational field, an object tossed into the air will lose velocity and energy, then fall back to earth. A light beam will also lose energy and become redshifted by losing velocity, though its speed is too great for it to fall back to earth. At any given gravitational potential, however, like the Michelson-Morley experiment, light will travel at the same speed in all directions, even if the frame of reference is moving, as long as any observers are moving with it. For observers in relative motion otherwise or for the gravitational influence over local velocity,

Doppler based changes in velocity are likely of negligible relation to the value c, which would show no average change, nor will any one frequency be affected differently. This is not to be confused with the contrasting changes in velocity owed to clock rate change through gravitational potentials. These are invisible in the local frame, but observed as a time delay in "remote" frames.

I'm not going to work too hard on relativity and Einstein. Others have trampled that territory quite well with little success, though I was surprised to find nobody able to properly cast these effects as simple artifacts of unit definition based on clock speed. Dr. Paul Marmet's views reckon fairly well with my own, and he's done a lot of very good work on this subject, so you are encouraged to explore those links in the Literature Cited section. I haven't read but a few of his papers after having satisfied myself that I've been able to bypass relativity and arrive at pretty much the same in my own way. So far, none of the ether theories other than mine seem to explain the mechanism of gravity that well, in particular gains in mass by celestial bodies. I'll likely remain an aging spectator until the rest of the world catches up, by which time I'll no doubt have been long dead along with the other malcontents, but who knows? Meanwhile, I strongly encourage anyone who has bothered to track me this far to examine the more than two dozen papers by Marmet that are still available on the Internet. He has surely blessed the field of physics far more than any other human and deserves credit for that, even posthumously and even if he didn't get it all right and especially considering the disgrace that the government subjected him to after bestowing Canada's highest award.

George Orwell: "In the end the Party would announce that two and two made five, and you would have to believe it. It was inevitable that they should make that claim sooner or later: the logic of their position demanded it. Not merely the validity of experience, but the very existence of external reality, was tacitly denied by their philosophy. The heresy of heresies was common sense. And what was terrifying was not that they would kill you for thinking otherwise, but that they might be right. For, after all, how do we know that two and two make four? Or that the force of gravity works? Or that the past is unchangeable? If both the past and the external world exist only in the mind, and if the mind itself is controllable what then?"

However, as for the one key, and absolutely untrue, postulate of relativity, the constancy of c for observers in motion relative to each other, Einstein himself took it back with GR: 'It will also be obvious,' wrote Einstein at the beginning of his 1916 paper, 'that the principle of the constancy of the velocity of light in vacuo must be modified.' The serious reader is well advised to read Dingle's 1972 book that wears on the twin contradiction to the world of mainstream physics to no avail, when long ago even Einstein had abandoned it. The relative velocity of light under such conditions was accurately measured and established firmly by an astronomer named Roemer about 1776. People continue to argue over this point while never seeming to understand that the constancy of c is restricted to a local frame along the path of movement, and that the concept of a local frame is somewhat difficult to grasp, it surely befuddled Albert Einstein.

As for Dingle's attack on SR and the ticking of clocks, the truth is that Einstein's original approach surely leads people to conclude that uniform relative motion makes two clocks both run slower than the other (or faster, or even not at all

depending on which of the three SR papers you read in chronological order). That is rather odd, but very few physicists would or could provide a good answer. What is true is that bucking the dogma was originally a requirement for a scientist, but since Einstein it isn't an option. This was indeed among numerous faulty premises Einstein invented and then himself abandoned in stages, yet all these contradictions are still rabidly defended and stepped around neatly by all manner of tricks, one of them simply the attempt to say that Einstein didn't mean what he said: "In comments published in 1910, the physicist Arnold Sommerfeld, a proponent of relativity theory, "covers" for the new paradigm by noting that Einstein didn't really mean that time dilation was associated with purely relative motion, but rather with accelerated motion; and that hence relativity was in that case not contradictory."

As explained most correctly, however, and for the first time anywhere, the constancy of light depends on strictly defined conditions that modern scientists strictly avoid, depending entirely on it being a local effect, meaning that were it possible to ride a photon, then the photon, or technically a wave front since a photon is not a physical entity, would perceive no change in its own velocity when traversing a gravitational gradient from point to point. That is the one realistic postulate, and if true, could explain the Michelson-Morley experiment if the unpublished results were not in fact quite null, which they weren't, but that's a trade secret. The Pound-Rebka experiment, however, demonstrates a gravitational redshift which would be measured as a slowing in velocity between two fixed points if the upper level clock is used, and a corresponding increase in velocity if the lower slower clock were used, but none of this requires relativity. In any case, my own ether model using revised and straightforward postulates that include an omni-directional random flow of shielded subatomic particles removes the artificial and irrational fallacies of SR and GR and replaces them with a simple physical explanation for gravity and all related phenomenon. This postulate could be phrased something like this:

Section 13. Simplified and Correct Solution (Occam's Razor).

All (relativistic) attempts other than Newtonian physics used to describe phenomena of inertia, uniform velocity, gravitation and accelerated motion can be replaced and more accurately and simply described by considering the separate and combined actions of a second vector separate from Newtonian mechanics. The first vector can be called the standard Newtonian effect. The class of Newton's equations, however, fails by half to account for the deflection of starlight and also fails to account for the local constancy of c during Doppler or the equivalent gravitational shift, an apparent contradiction between the Michelson-Morley and Pound-Rebka experiments. The second vector that resolves these contradictions is provided by an ether viscosity effect coincident with and to the same proportion as the Newton effect. Because matter is largely transparent to the ether, the ether viscosity effect causes clock rates to slow

due to the slower kinetic activity of ether particles having been shielded and partially deflected by matter, a phenomenon which naturally yields gravity conforming to the inverse square law. On passage through a gravitational field, the local increased velocity (blueshift) owing to Newton's effect is cancelled by a smaller velocity (slower clock rate), yielding a constant c, and while the net LOCAL velocity change is null, the deflection of starlight is double Newton (Soldner's estimate).

Since the definition of length and other physical quantities are inherently dependent on clock speed, these all acquire corresponding changes such that local differences are not discernible where one gravitational frame may be subjected to a changing gravitational potential. The mathematics that correctly describe such phenomena are not difficult to derive and are vaguely similar to the Lorentz transformations, except that they reflect the kinetics of an ether viscosity rather than bodies in uniform motion. In addition, the constancy of c value for equations that describe the behaviors of mass must be altered to reflect the slightly different kinetic interactions of ether with different elements, and it must be acknowledged that the formation of various elements is also a function of ether kinetics under various gravitational conditions near the centers of large bodies of mass. This approach corrects the known failure of precision measurements to conform to the relativistic equations beyond a few decimal points and also provides a rational basis (without proof) for the claims of the growing earth proponents.

'It will also be obvious,' wrote Einstein at the beginning of his 1916 paper, 'that the principle of the constancy of the velocity of light in vacuo must be modified.'

...another very strong hint that Einstein understood the errors in his special relativity and had only recently realized the gravitational effect on clock speed that caused him to double his estimate of starlight deflection over Soldner's original paper that he had plagiarized not long before. It certainly must be assumed that he was referring to the delayed passage of the beam, now usually perceived as a slowing of light through a gravitational field, although the lower velocity is not, as Einstein also affirmed, perceived in the local frame. Here, and in other examples, we see the man waffling. Unfortunately, Einstein never managed sufficient insight to provide a specific and workable definition of the difference between a local and a remote frame, or how they in this case would have to differ from the "inertial" frames he described in the special theory. Indeed, his concept of an "inertial" frame was entirely useless unless applied to unimpeded (uniform) movement through a gravitational gradient and as a means of establishing differences in physical measurements between frames at different gravitational potentials.

Nor did Einstein ever understand, or feel necessary to explain, that redshift and blueshift are of the same class of velocity measures as time "dilation," specifically, that the redshift confirmed by Pound-Rebka is in the same right also a non local decrease in c along an upward path (an increase on the downward path), and that these two vectors (gradients) cause a locally measured change in velocity to cancel exactly, hence no internal acceleration/deceleration during free fall even for the virtual photon, but an observed change in clock speed or frequency shift for all other observers. Indeed, this explanation, Newton plus ether viscosity, covers everything in the experimental data or observations that relativity claimed as verification of the garbled, unscientific philosophy that has become known as

relativity, special or general. How odd that this simple, factual solution has been firmly established for the first time in this unacknowledged little paper by a non physicist! Well, actually, not at all odd for those who understand how scientific projects are funded.

Of course, the relativists, clutching fast to their Holy Relativity, will insist that reality must conform to the relativity model and that all attempts to contradict it are doomed from the outset. As for being a solution to Unified Field, as I originally vowed this would be, I can only say that I've provided a hasty and limited, but effective solution to the problems of modern physics. With a little more effort I am ready to deliver more detailed mathematics for the class of problems otherwise considered to be relativistic, a steady state model of the universe, and a more rational approach to the problems of modern physics, though in simple terms. The more advanced levels of physics are not, however, for me. They are far too technical, and I am not young enough to tackle them as well as others. What I have always been good at is digging to the bottom of an overly complicated issue and boiling it down to the essentials that were obscured by excessive and unnatural tinkering, hence I truly believe that I've managed to identify some serious wrong turns in the development of modern science, correct some philosophical errors that marked the departure of science from its original and sound suppositions, and restore the foundations of science especially physics, to a stronger foundation.

Dingle and Einstein Make Up.

While the arguments of Dingle against Einstein are entertaining, most readers are likely perplexed. The majority may be having trouble with Dingle being unable to perceive his own fallacious reasoning where once he was Einstein's defender. The others are still likely trying to figure out how two clocks in relative motion could both be ticking faster at the same time, or more slowly depending on which version of SR you've read. This ought to be explainable. Uniform velocity has no place here; however, it deserves an explanation if two objects, A and B, moving away from either each would perceive a redshift in light from the other's source. This is due only to the kinetics of light interacting with objects moving in relation to the source. The redshift does indicate a v-c Doppler effect, but if the wave front is restricted to its measurement of a constant c, then the wave front must reckon a slightly faster clock rate over a larger distance along its path than expected for a fixed distance at the point of departure. This is equivalent to the redshift for a rise in elevation between two fixed points, the cause being that the clock at the higher elevation does in fact run faster; therefore, in uniform relative motion it can only be said that a potential clock speed difference applies for the acceleration or deceleration equivalence of a gravitational potential required to cancel the difference in motion between two objects. Clocks A and B in uniform relative motion, however, remain synchronized until this motion is overcome. This may or may not result with a difference between clocks A and B, but a total difference of time between the initial and final gravitational potentials can be readily calculated using the viscosity expression. If everything in special or general relativity could either be erased or replaced with this minor interpretation, only then would Einstein's relativity have any remaining connection to reality, SR was wrong. Uniform relative velocity matches the c +/- v model, and the only clock differences in uniform relative motion are in reality only potential differences due to the gravitional effects required to bring them back to a fixed position and stable gravitational potential. This is all that

Einstein was so awkwardly attempting in his theories of relativity. Nor is the constancy of c required in GPS (Marmet).

See also, Renshaw, Aerospace and Electronic Systems Magazine for a valid logical refutation of the constancy of c as Einstein's second relativity postulate; that is, an a priori assumption cannot stand as a postulate (that requires changes in length and clock rate), but only on sufficient experimental verification. Many have noticed this for many reasons, probably all of the references given in the Literature Cited Section. However, the true meaning of the "fatal" fundamental flaw in Einstein's second postulate seems to have been missed as I see it. This is made clear by what I've stated should properly replace it, the Law of Physical Measurements discussed earlier in this paper.

It is, in fact, a fundamental feature necessitated by the very process of making measurements, that being that if clock rates do differ between gravitational potentials as the relativists and most others also say, then the postulate can be amended accordingly: The (local or internal) speed of light throughout all gravitational potentials (gravitational field strengths) is constant, despite changes in other physical measurements that may occur, and all changes in physical measurements will be covariant with clock speed throughout a gravitational gradient. Call it the Constancy of Gravitational Gradient. It's very simple. Given this second postulate, the ether model and viscosity equations used to amend the Lorentz transformations and other relativistic equations will provide rational and perfectly correct predictions. However, with or without the ether model, the fact and principle of physical measurements changing as a consequence of clock speed is not difficult to establish or perceive? Why is there no mention of it in the mainstream?

If A and B were moving towards each other (v+c), then both clocks could be inferred as running more slowly than the other for a constant c, but again, the same changes apply to the expected time of arrival for a wave front calculating a constant c with respect to its own path, and do not apply to events between A and B. Not to excuse Einstein's muddle, but perhaps the idea is more understandable when expressed in this way, which perhaps it should have always been as an inference from the Michelson and Morley experiment and NOT a constant c between source and observer in relative motion. That experiment, however, did not justify a conclusion of constant c between source and observer, but to the constancy of c throughout a gravitational gradient for all points coincident in any plane of uniform gravitational potential, but all points not in that plane entirely during any given interval will record a different clock rate for the path, and that clock rate will involve proportional differences in all other physical measures. It is worth noting that the term plane in this sense is by necessity somewhat curved as the gravitational field is generated around a spherical object of mass.

But for two spaceships launched at velocity v between A and B while either moving towards or away from each other, then both will arrive at distance s times (v+c, or v-c), but then a little sooner than expected for uniform travel because the increased energy of takeoff and impact (acceleration/deceleration is equivalent to gravitation) will cause an additional slowing of clocks compared to either A or B, so both ships will arrive just a hair early; in fact, at time t2, equal to t1 times square root (1-v^2/V^2). Because the ships have a solid mass of particular atomic structure, the maximum velocity is not c, but the slightly smaller value, V, which we could call the maximum (intrinsic) velocity for

that particular type of mass for acceleration between two potentials. Because the ships were exposed to inertial forces, their clocks will be slightly slower than the stay at home clocks; in fact, a little bit more so than predicted by Einstein's Lorentz adjustments because the maximum velocity of impact between two potentials is a bit less than c for bodies of a characteristic mass.

Such facts in no way permit the possibility of time travel. For one thing, a clock that runs very much slower than another would be subject to extreme gravitational forces, so just because a person would reckon the same mass as in another different gravitational field, and be the same height, doesn't mean that life really could be the same, or that the increased gravitational force wouldn't crush or tear him apart. Time in the sense of clock speeds is only a feature of physical measurements which ties them together. It cannot ensure that everything else functions in the same way, and all clocks move forward, never backward, if at different rates.

The Sagnac Effect Confirms Special Relativity?

The Sagnac effect can be thought of as a ring or loop with a light source attached. If the ring is rotated, the light will travel towards the original starting position in both forward and backward directions. Obviously, light in the backward direction will reach the original start/end position sooner. This is usually taken as confirmation of the theory of relativity as well as that of classical theory (v+c between source and observer), but a refutation of the "ballistic" theory of light, i.e, v+c with respect to the emitting source. Something not right there. Why is SR different than the classical theory if the results agree with both? Here is an (otherwise good) explanation of similar kind. Note that the difference in travel times between inner and outer loops is calculated from the velocity of light given as v+c in one direction and v-c in the other. Sorry, but while discovery of the Sagnac effect may have failed to confirm the "ballistic" theory, it certainly does not violate the classical v+c model, nor does it validate SR.

In addition, of course, there is a component of angular acceleration giving a slower clock rate by an additional factor of (1-(v/c)2)^1/2, and this would cause a further delay for both. This, of course, is attributed to relativity, but I have already described here how the same correction factor can be derived on better logical grounds without the need for reference frames or esoteric jargon. There is no need for relativity. Now, it is most interesting to note how Marmet addresses the same problem and comes to the same conclusions, although he uses a different approach than I for deriving the Lorentz counterpart of (1-(v/c)2)^1/2 from the logical standpoint of maximum drag due to ether viscosity. I won't discuss his method, but will grant the benefit of doubt that it is based on sound reason as well, but propose that my own logical foundation provides a better model. Marmet discusses how this approach is used to make corrections for GPS and how these corrections are not properly attributed to relativity as they usually are. Of course, the value of c in a non rotating frame is not necessarily constant either, but that also depends on the relative motion of the source. In practice, the value of c is an effective average of numerous transmission rates, or perhaps the fastest in a given situation, but by no means is c constant or limited to the established value of c.

It isn't difficult to find others who can readily account for GPS corrections using classical Newton mechanics only. I haven't read many in detail, and so cannot guess how they account for the time delay portion. Cantrell expresses these difficulties in general, and also cites in this paper the usual reasons for rejecting the various forms of "aether theory" as being likewise very artificial, and he also mentions one prominent physicist's well known proposal that gravity is itself ether, not too different than my own assertion that exterior shielding gives a differential gradient very similar to the larger scale, macrocosmic phenomenon of osmosis; hence downward pressure and precipitation of mass near the centers of large bodies of mass. Why no one has ever properly conceptualized the ether as an omnidirectional Brownian phenomenon, I can't understand, but Cantrell cites other prominent physicists who have postulated the partially entrained ether model and experiments which have verified this concept. I strongly recommend that you read Cantrell's article, because he sums up the relativity issues so well. My own ether model is similar to the gravity is ether concept, but goes farther in describing how a sea of high velocity particles moving in random directions, transparent to matter but suffering mild resistance from atomic nuclei at the outer perimeters, will account quite simply for gravity, the inverse square laws, and all the other forces of nature so far unexplained. Because the only obvious manifestation of ether particles of such fine size is the gravitational effect, the only velocity gradient measurable would be the force of gravity itself. The "partially entrained" evidence could be better interpreted as a series of overlapping gravitational gradients of smaller (earth and moon) to larger (solar, interstellar, intergalactic). The meaning of "partially entrained" is not clear to me, though. Perhaps this concept is more closely related to the phenomenon of "frame dragging," which is not properly a feature of relativity but instead a variation of the Coriolis Effect, but much weaker on the surrounding ether.

Would this also account for the experimental results which give strong support for a partially entrained ether? I believe that is the case, because on a remote scale, more powerful gravitational field densities with only very minor potential differences would exist within and between galaxies. These gradients would show up as many ether currents of various magnitudes in different areas of the sky, just as the experiments show that Cantrell explains so well. We are only conscious of our local gravitational gradient, not realizing that it is the gradient itself that we sense, and not the actual field strength, and that this gradient is a direct result of the combined effect of partial shielding of ether particles by masses of atomic nuclei. The almost imperceptible gradients derived from large scale gravitational effects would give the small fringe shifts and variations in pulse duration that have been used to support a partially entrained ether theory, though without the logical connection to gravitational field density itself. In fact, given more sensitive measurements, the strength and magnitude of such macro gravitational fields could be used as a galactic map, even an indicator of the age of the galaxy at a given point.

The following quote of Einstein's is best interpreted as a retreat from special relativity as well as a sheepish acknowledgment of the nature of ether that I've set forth in this paper, not that I am the first, last or only to take a similar stance. It gave me extreme pleasure to find this particular quote by Einstein, as his concept of an ether at this point was very close to my own; indeed, if only he had taken another step and realized that he was dealing with a viscosity problem, his original bailiwick.

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Bibliographic Code: 2008APS..MARY12003M

Abstract

In his 1918 ``Dialog about Objections to the Theory of Relativity" Einstein emphasized the potential applicability of the Ether concept in General Relativity. He noted that ``Lorentz brought a rigid substance embodying coordinate systems into play, but SRT denied the existence of all ether concepts. However, GRT is different, and empty space has physical qualities characterized as the components of gravitational potential. This situation can very well be interpreted by speaking of an ether whose state varies from point to point. However, one has to be careful not to attribute to this ether any matter-like properties such as a distinct velocity at each point." This presentation seeks to identify the qualities required of an ether. Concepts might include ether as a cause of gravity, and as the source medium for the production of electric charge. The ether might conceivably take the form of a diffuse mixture of positive and negative electric charge.

From Cantrell: The mainstream authorities are fond of saying that GPS would not work if it weren't for Einstein's relativity. Clifford Will of Washington University has been quoted as saying:

> SR has been confirmed by experiment so many times that it borders on crackpot to say there is something wrong with it. Experiments have been done to test SR explicitly. The world's particle accelerators would not work if SR wasn't in effect. The global positioning system would not work if special relativity didn't work the way we thought it did.

Oh really? What does one of the world's foremost experts on GPS have to say about relativity theory and the Global Positioning System? Ronald R. Hatch is the Director of Navigation Systems at NavCom Technology and a former president of the Institute of Navigation. As he describes in his article for this issue (p. 25, IE #59), GPS simply contradicts Einstein's theory of relativity. His Modified Lorentz Ether Gauge Theory (MLET) has been proposed as an alternative to Einstein's relativity. It agrees at first order with relativity but corrects for certain astronomical anomalies not explained by relativity theory. (Also see IE #39, p. 14.)

Note on the Hafele-Keating Experiment

If one points out that none of the experiments actually confirm either SR or GR, you will likely be hit with a blast of defenders, that numerous experiments, GPS data, etc, have confirmed SR and/or GR and left no doubt. One of the first that will be cited is the Hafele-Keating experiment, and if you point out that the data H/K published were radically altered in the most extreme and unwarranted sense, in other words blatantly falsified so as to support Einstein, then you'll be hit again as being uninformed, that so what if the first major support for SR turns out to have been falsified, many more recent confirmations abound. Most of those we've already covered and easily dismissed

both on solid logical grounds as I've put forth, but also by good reference to other prominent PhDs in physics. Instead of supporting GR or SR, the data consistently confirm the c+v model between source/observer, ordinary Newtonian mechanics, and the slowing of clocks in gravitational fields (along with related physical quantities). Most of that has been covered adequately here, if only briefly, but the Hafele-Keating method of cheating the data is worth a look. The raw data wasn't released for some time, but here's one of the first comments on that by A. G. Kelly, PhD, from which the following table of raw and altered data can be seen.

Table 3. Original Test Results and H & K alterations (ns)

		Eastward			Westward	
Clock No	**Test Results**	First manipulation	Second manipulation	**Test Results**	First manipulation	Second manipulation
120	**- 196**	- 52	- 57	**+ 413**	+ 240	+ 277
361	**- 54**	- 110	- 74	**- 44**	+ 74	+ 284
408	**+ 166**	+ 3	- 55	**+ 101**	+ 209	+ 266
447	**- 97**	- 56	- 51	**+ 26**	+ 116	+ 266
Average	---	- 54	- 59	---	+ 160	+ 273

Notes : (1) The -59ns and +273ns averages derived by H & K are to be compared with the -40ns and +275ns predicted by the theory. (2)

The HK experiment deserves comment beyond the obvious fact that the data were faked to support relativity and that even where data may not be directly skewed for that reason, there yet remains good reason to question conclusions that either SR or GR is supported. If the raw data were, however, subjected to sound orthogonal transformation that provided the given pattern, the question is why that would support SR, and which version of SR does it support and where are the exact mathematics employed. Wikipedia, et al, does give a breakdown between SR and GR (others include the Sagnac effect). The SR portion could be due to uniform motion as in the first version of SR published in 2005 where the entire period of flight is adjusted for clock speed, OR, it could refer to the equivalence principle in later versions of SR where only the periods of acceleration and deceleration are factored. But, like the raw data and other experiments, we don't always know. Since GR also made use of the equivalence principle, we might well assume that SR is supported based only on uniform velocity (the twin paradox). But there's no way of telling. There's also the question of why some tables break out the Sagnac effect along with alleged SR and GR effects. Finally, however, is the very obvious fact that since the data provided cannot possibly have the degree of precision as implied after transformation, that neither SR or GR can be supported. All that could be said, even if the data were that good, which isn't the case,is that clock rates are variable with respect to gravitational field strength. That need not have a thing to do with either SR or GR. That's all that could be said. Unfortunately, even though true, such a conclusion would be unwarranted based on this experiment except where performed by a religious cult and not a science.

The Foos Coefficient of Covariance for Replicated Data Sets

Simultaneity

For Einstein to break with reality and make the false second postulate, it was necessary, or so he felt, to redefine simultaneity as relative. I'd have little trouble demonstrating that simultaneity, however it may be perceived otherwise, is in fact strictly absolute once all facts are taken into account. One of these days, especially if I gather a large enough audience who asks for that and could appreciate it, I may go ahead and add that in. For now, I'll wait. Meanwhile, here's someone else's refutation who rightly points out that Einstein's relative simultaneity is false, but fails to point out the correct reasons why. I admit that I have trouble digesting the rest of this guy's paper, but his reasoning seems to be an alternative philosophy on the meaning of time, different, but no better than Einstein's. I only point this out to demonstrate the fact of diverse arguments used to refute Einstein which employ one fallacy to disprove the original fallacy of relativity. If Dingle had been able to provide an alternative as opposed to an attack, he could not have been written off so easily, and while Essen's more rationale arguments were so conveniently ignored, it would have been better had he provided a good rationale and mathematical model that gave a better answer. Once again, this is the first and only fundamentally correct attempt to unravel the relativity hoax and replace it with sound reasoning and straighforward mathematics. I do not claim to be the only challenger who is not a crackpot, however, among the many who clearly are. All of the critics referred to in this paper have provided sound criticisms and partial solutions. Nor is it impossible that I've made minor errors in this lonely attempt to address issues that have thwarted the best minds for centuries. I only ask not that the whole not be condemned by scoffers, but instead that good minds will make any corrections needed to further illuminate the path to understanding.

Frame Dragging

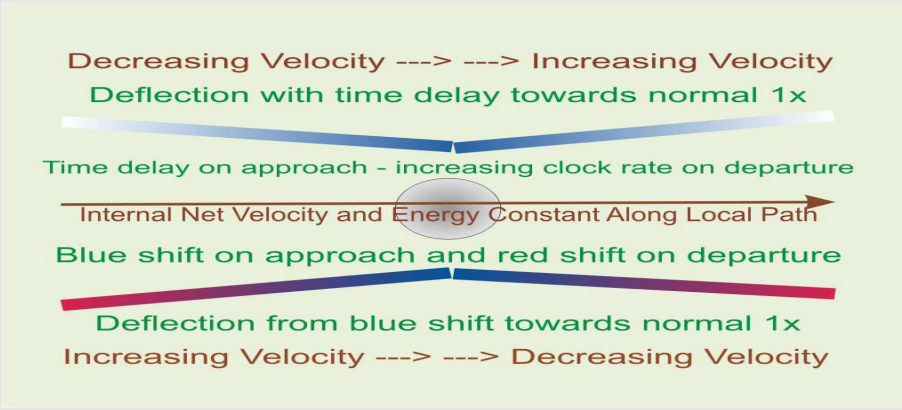
This is supposed to be another far reaching insight of relativity, but if you consider the ether viscosity model, the same effect is not so far reaching or difficult to understand. The swirling effect of ether as the earth rotates is really almost the same as the Coriolis effect in water and air, and is also evident in the arms of spiral galaxies. Don't ask me to try and figure out the precise math for that one, but if relativity were used to do it, the ether viscosity model would do a much better job. The idea is that the earth's rotation gives a very slight push to the ether in the forward direction, most pronounced at the equator, which, of course, results in a slightly faster value for c in the forward direction.

The Correct Answer

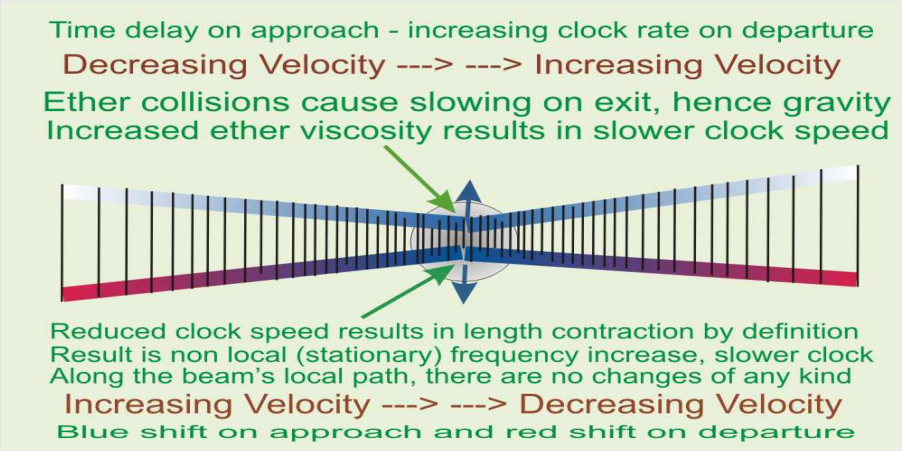
All physical phenomenon falling with the scope of Newton and Einstein can be recast into two vectors of mechanics, neither of which include any version of relativity. The first vector is standard Newtonian effect, inclusive or not of gravitational red and blue shifts that, like Pound and Rebka proved, can be countered by means of an opposing

Doppler shift. This deflection should match Soldner's calculation. The second vector is a simple adjustment for clock speed as it varies in gravitational fields of different strength and/or potential (which aren't necessarily the same thing). The combination of these two vectors causes a doubling effect for starlight deflection, that is, double Soldner's original estimate based on vanilla Newton. The clock vector produces a typical refraction from the slowing of the light beam as well as a frequency shift as viewed remotely (not along the local path), similar to the refraction known as light enters glass, except that the slowing of the beam by gravity is owed to clock speed and not meaningful along the local path (frame) which the beam travels. The combination of the two, Newtonian deflection and clock speed vectors through gravitational fields results in the cancellation of observable local changes in light speed (as well as length and other corresponding physical measures as they must be defined); however, the two vectors are additive in terms of deflection of light through a gravitational gradient. The question of how changes in clock speed and length are to be accurately calculated, and why they occur, is represented by the kinetic energy formula for viscosity as derived earlier. Results for physical objects will be slightly larger than relativistic attempts because c is not the maximum velocity between two gravitational potentials due to atomic structures that offer somewhat greater friction to an ether otherwise at equilibrium. This modification truly does explain the anomalies in Mercury's trajectory and paths of spacecraft that the Space Lab has been unable to reconcile by means of relativistic corrections, and in the simplest terms.

Yes, essentially, that's all there is to it. That alone answers ALL of the questions and removes all of the confusion stemming from the severe errors of relativity. Neither are the mathematics needed to replace relativity difficult. The basics I've adequately described in this paper, though a lot more could be done. Given enough motivation to overcome my laziness and the joys of retirement, and I'd be glad to crank out anything else needed. That would be real research, though, and not the theatrics done by RDD to shield its cocaine racket from public exposure. I'm certain of all of this and not in any way deluded. The below diagram depicting light as it approaches and departs a gravitational source should make it easier to visualize the way it is affected in terms of both clock speed and frequency shift. It makes a good yantra, in the Christian sense, if stared at and pondered. Give it a try.



A slightly different diagram may help explain better the cause of gravity and the related consequences of clock speed and length contraction and how these in turn result in differences between locally co-moving and remote "stationary" measures of changes in velocity and frequency. Marmet gives different explanations using different logic, so I support his criticism of relativity but am guarded about his own solutions.



How interesting that the existence of something now depends on the whims of the modern scientist rather than the object itself. It is now, perhaps, timely to end with another moral to the story of variable clock speeds. How does one reconcile an infinitely large, steady state universe that always existed with the Bible's six day account of creation? This is one of the things that all of us, scientists especially, will have to get used to. Everyone has their own clock and ages differently depending on his own gravitational field. Likewise, God's has His own clock. It isn't anywhere nearly the same as the human clock, not making either necessarily wrong.

Planck's Constant and Pound-Rebka?

A disturbing result of this (my own) interpretation of the Pound-Rebka experiment is that Planck's constant must be a variable when viewed outside the local frame, and this in fact must be true since clock speed is fundamental to the definition of all physical constants. Thus, we will now herein describe how to account for Pound-Rebka results in terms of clock speed, wavelength, length contraction, and also Planck's constant using only standard Newtonian mechanics and variable clock speed. I may refer to my own approach to these things as the "unified" method. In principle, the Pound-Rebka frequency change applies to a single photon. Accordingly, a continuous range of energy levels, is possible with a moving source or receiver, though no such changes are visible along the local path. A continuous range for velocity of light through a gravitational field is also a required consequence for non local measurements, and that isn't my failure to interpret the Pound-Rebka results correctly.

Renshaw's interpretation of a Doppler shift in the experiment correctly requires a change in the velocity of light throughout the gravitational potential (non local). Renshaw brings this up frequently and states explicitly that Einstein's prediction of a slower clock rate is correct, while the linear dimension adjustment in relativity he claims is incorrect. He fails to note how this alters the interpretation of the Michelson-Morley experiment, but the truly relevant point is that it forces a rising photon to experience an abrupt reversal in momentum. While it would seem unlikely that any respectable physicist would agree with Renshaw on this openly, he is correct in noting that the velocity change is a requirement for attributing the Pound-Rebka results to gravitational redshift. It just doesn't permit equilibrium along the beam's local path as it travels up or down. The change in light velocity observed remotely is actually taken for granted by the physics community. In other places he also promotes the notion of a variable light speed in gravitational fields as being responsible for the Mercury orbital velocity anomaly. Surprisingly, if you're not a physicist and still stuck on Einstein's 1911 constancy of c fallacy of special relativity, general relativity recognizes a variable velocity due to clock speed differences between gravitational potentials, the main point that we've been dwelling on here, but it just doesn't explain it very well. That frequency shifts represent opposite velocities is not recognized, of course, but it should be. I'm relieved to see a professional like Renshaw interpret Pound-Rebka in favor of v+c, but I do think I've done a better job of explaining what really happens so that no doubt or confusion remains in the mind of a good reader.

Renshaw's thrashing is instructive and characteristic of the general confusion instilled by relativity over the correctly defined differences between a local and a remote frame of reference . It is interesting that Renshaw makes the attempt to reconcile these logical inconsistencies by invoking a light speed that varies in gravitational fields, not to say that isn't true, while my own solution requires a kinetic energy reduction using the ratio of a given velocity to the maximum velocity for a mass that is something less than c (or equal to c in the case of a photon). Renshaw's flaw, as I see it (perhaps wrongly), is not so much his use of variable light speed, but the concurrently required denial of length constriction, not the kind of Fitzerald or Lorentz or Einstein used to maintain constancy of c, but owing to the inherent definition of length and a local constancy of c for at a given gravitational potential. Since the unified equations will achieve good results obtained in terms of energy and wavelength, my own stand is that Planck's constant must also vary with a single wavelength depending on gravitational field. Am I alone in this? Before confronting any possible Planck contradictions, however, I find another of Renshaw's contradictory statements of interest:

"Although it can be demonstrated that any given component of light increases its velocity as it leaves a gravitational field, the light also loses energy, as measured by a receiver (atom or clock) located outside the field, accounting for the gravitational red-shift experienced by the observer." The key words are "located outside the field." That is because the change in velocity (and hence, frequency) must be arrived at by "remote" inference in the same way as Einstein's changing velocity, where different clocks speeds are applied to the same events all along any gravitational gradient that is not coincident with events along the local path. Actually, Renshaw's beam gains in velocity in terms of a quickening clock speed and loses it to the same degree in terms of the frequency shift, but the remote observer he refers to is going by time delay only. But his observation is correct! It should not then apply to a local frequency change as measured in a single local frame as usually allowed to be assumed for interpreting the Pound-Rebka

experiment. In this paper, the term "local" frame simply means a single gravitational potential or a range of co-moving potentials.

The "inertial" or "local frame" concepts are never properly explained or understood, which is what this paper does here and now. Does it not seem odd that the velocity of light would increase with distance from earth while its frequency and energy level both decrease? That would be the most flagrant violation of the second law! The solution is that when going by clock speeds as seen from a higher potential, it does increase, while going by frequency change (equivalent to Doppler shift), it loses velocity, the net result along the local path being a zero inertial effect as it travels freely and unhindered. Therefore, light velocity both increases and decreases to equivalent degrees as it traverses a gravitational field, depending on what effects are used to infer the correct measurement, but at any point not coincident with the same gravitational potential (local path), both clock speed and frequency would vary. This co-moving or single potential is the only correct interpretation of a constant velocity for c, while all measurements from other potentials will give v+c results in terms of clock speed or the opposite v-c in terms of frequency.

The local path could also be defined as any points on a plane containing the identical gravitational potentials. If Renshaw is also correct in saying that, beyond the adjustment for velocity dependent frequency, no length contraction is required to maintain a constant c between two gravitational potential differences, then the photon itself would experience a loss in velocity as it rises, and the observer is forced to take the average of two clock rates. This might seem sensible for a ball thrown in the air, but it is especially difficult to see how Einstein's accelerating photon could actually be restrained by a black hole when accelerating on departure, or how Renshaw's constant velocity photon resolves that dilemma. The only solution is to correct the Fitzgerald notion of length correction, not for uniform velocity, but for different gravitational potentials with different clock speeds which are the basis for defining length, as L Essen so well understood as the inventor of the modern definition for a meter. This also requires a change from the concept of "inertial" frame to the restricted observations between points at identical gravitational potentials, either fixed points at one elevation or instantaneous measurements along a path through a gravitational gradient. The velocity of light between source and observer at different gravitational potentials is never constant, but dependent on whether measured in terms of frequency (faster/slower) or time differential (slower/faster). The photon itself is aware of no change while in equilibrium or free fall, and as long as the clock has not completely frozen, it will continue to travel at the same rate. From a distance (higher potential) it will appear red shifted and slow to depart. From lower potential, it will be blue shifted and gaining speed. It is this subtle application of opposites that seems to have confused the collective scientific mind.

If velocity is expressed as the number of crests per unit time, then frequencies would be higher with more crests passing a given point, not the lower redshifts. The only way to achieve a stable frequency would be for clock speeds to increase at higher elevations. but then more yet to bring about the lower frequency/energy levels (redshifts) as verified by Pound-Rebka. Neither reduction is in accord with any logical explanation offered by relativity, but if distances were to expand transparently due to faster clock rates in lesser fields as Einstein erroneously attributed to lower uniform velocities in special relativity, then energy levels would decline as expected even as frequencies or velocities remained constant for a local observer on the path. This failure to perceive the real inconsistencies in

Einstein's logic is what leads Renshaw to reject length contraction, failing to recognize it as necessary for offsetting any local velocity change. While increasing clock speed could maintain velocity as a constant c locally for a moving photon, Einstein's length contraction in a gravitational field must be rejected in order to account for the calculated decrease in frequency shown by Pound-Rebka for non-local observers. These contradictions can only be resolved by accepting a locally constant c with slower clock speeds and length contraction at lower gravitational potentials, but rejecting a constant c between source and observer where only clock speed and length for one potential is observed. Rather than struggling with coordinate systems in an imaginary spacetime, the scientifically correct approach is to report velocities where the length and time parameters are specifically associated with either the upper or lower gravitational potential. To the extent that these conditions are carefully stated, which is a requirement for real scientific work, then the meanings of c and any other velocity reported for light would be well understood and never ambiguous. When this is done, we find that a faster clock speed at a higher elevation (potential) naturally yields two results - a lower than expected frequency (because passing crests are logged only half as often with the faster clock) and a slightly delayed time of arrival (a less than c measurement since the upper clock is ticking faster). Even so, the rising beam is accelerating, converging back to c at the same rate that its frequency drop is stabilizing. If the beam was mirrored 90 degrees on a level plane and mirrored back, we would get the same result as Michelson-Morley, c in all directions.

How these contradictions are resolved is critical to our understanding. If the photon experiences increased velocity, then the receiver should experience a higher, not lower frequency, the opposite of what is observed, but a higher clock speed does explain the lower frequency measured. This is the reason Renshaw denies length constriction effects and accounts for the loss of energy by invoking only increased clock rates in lesser gravitational fields. He apparently doesn't understand that only clock speed will affect the non local measurement of wavelength, but length constriction is required to maintain equilibrium and unit definition along a local path. Clock speed change alone may account for the lower frequency in the Pound-Rebka result, but the intrinsic definition for length is overlooked by Renshaw and others, as is the failure to conserve momentum along a local path if corresponding length does not change. The classical Doppler shift equations used to confirm the Pound-Rebka frequency shift are normally bound to an increase in velocity as both receiver and emitter move towards each other with the expected frequency change, though out of deference to Einstein any velocity change is apparently denied. Nor is the frequency shift relativistic as Renshaw himself points out, but neither do they rely on clock speeds without changes in length as he maintains; otherwise, the photon would have to put on the brakes to meet the expectation of lower frequency and at the same time accelerating to accommodate Einstein's time delay. Renshaw's explanation is only a good one by half, the complete one requires only that velocities be stated either in terms of clock speed or frequency change, and that one velocity must be the opposite of the other for conservation of momentum to apply.

Length contraction is required to maintain conservation of momentum for the photon and to conform to definition. There is nothing that accounts for loss of velocity due to gravitational effect, at least not for massless photons, unless the shrinkage of distance is also observable in a different frame as with the shift in starlight passing by the sun, but in that case Einstein and his supporters will admit that the beam of light itself experiences no change in velocity along its path. Renshaw does not seem to address these contradictions, nor does anyone else that I can see. But to resolve the

matter, go back to the fundamental and formal definition of a meter that the great scientists seem to have forgotten. That definition depends quite strictly on clock speed as assumed to be reflected in the specific number of wavelengths (frequency) of a cesium spectral line. If the number of those wavelengths increases at a lower gravitational potential, then a local meter must shrink relative to its counterparts at higher potentials. End of story. Now, was that really hard?

It will be of interest to cite R. L. Collins, 1997, "Gravity Slows the Speed of Light,""traveling at c, time dilation is infinite and no change or evolution of these fields is possible. This poses a huge problem for the interpretation of falling and rising Mossbauer gamma rays, which experimentally show that the energy increases or decreases with height according to gh and leads to an apparent mass change of gh/c^2. The energy of the photon can only change when its wavelength changes. And so, one is led to the notion that the velocity of light in a gravitational field must be less than c in order that the distribution of EM fields may change size and reflect these slight changes in energy." Thus, Collins illustrates a major contradiction only resolved by this paper; that the "inferred" slowing of light in a gravitational field is offset by the matching, but never made, increase in the velocity of light as equally inferred by its blue shifted frequency, but these changes are only meaningful as perceived from a different gravitational potential (frame) than the initial one under consideration. The common failure to make those conditions clear is what leads to confusion when reading explanations like those of Collins. He should say that the velocity of light is c throughout a single gravitational potential, but it would be slower when the same is measured from a higher potential. Also ignored is the issue of length contraction as a consequence of clock speed change, all of which translate to a constant c along the path of motion through a gravitational field; hence, no internal inertial change during free fall. It is also obvious that time dilation/constriction cannot be due to uniform velocity as Einstein originally believed and quietly abanonded later, but due only to gravitational effects, this being one of the many pitfalls of such a poorly conceived notion. Hopefully, the reader is enlightened by this discussion. Should it be pointed out that Collins is characteristically naive in stating that time "dilation" is infinite at the speed of c. Clock speed effects are not an effect of uniform velocity, and clock speed will only reflect ambient gravitational potential at any speed, even c or greater. Collins, as is common to man, has been snared by the original SR argument that clocks will become slower due to uniform motion and mixed that with Einstein's fallacy that c is the speed limit of the universe. Instead, Collins could have said that clocks in a black hole would stop cold dead or that internal clocks for objects accelerated near the speed of light would stop. He also stumbles over the fact that the velocity of light in a gravitational field is not c from the standpoint of a lower gravitational potential, but less in the same proportion that he cites for energy changes. Yet another book of muddled thinking between velocity and gravitational effects , but the good understanding provided in this paper should make Collins' errors more apparent and intellectually enriching to consider.

The combination of such errors induces physicists to state that light speed diminishes with gravitational field strength when no direct measurement would support such a contention. To resolve this inconsistency, Renshaw invokes the familiar changing clock rate at higher elevations as the reason for the velocity change, while Collins insists on a constant clock rate (zero at light speed) and calculates instead a refraction index based on general relativity. Neither remembers the length constriction required by the Lorentz transformations for interpreting the Michelson-Morley experiment because they have forgotten how length is defined and are otherwise unable to find a mathematical

expression for calculating clock speed changes other than the physically meaningless Lorentz correction. Has no one realized that a redshift (lower velocity) is simply countered by an increasing clock speed (higher velocity), or the reverse in the opposite direction, such that a photon, like any other object, simply experiences no (internal) velocity change along the local path, i.e., free fall? None of this requires spacetime, only common sense, provided a rational alternative to Lorentz is available, and that would be the simple viscosity model for KE introduced in this paper. Others, like Marmet, have given other explanations, but mine is better, I think. In accord with the same, it is more realistic to consider free fall as a "rest frame" and equivalent to uniform velocity, and an object on the surface of the earth as experiencing acceleration. Nonetheless, as an object or photon falls freely into a gravitational gradient, its clock speed will diminish. On the reverse trip, as a rocket lifts off, its clock speed will temporarily be further reduced until gravity is overcome and then increased as it establishes equilibrium with higher elevations (gravitational potentials).

There is clearly a lot of confusion over such matters, and that is what we want to clear up. Collins continues with these assumptions to calculate the sun's deflection of starlight in terms of an index of refraction for the relativistic increase in a photon's apparent mass in a gravitational field, claiming that his calculation matches experiment. The reduction in light velocity near earth is calculated by him as c divided by (1 + gr/c^2), where g is the gravitational constant and r is the distance from the center of mass (earth). It is curious to note the similarities to the Pound-Rebka calculation where the Doppler equation is used to account for the same effect, but the velocity terms are not squared in the Wikipedia example. Then again, consider the unified correction factor where neither Doppler nor changing light speed is appropriate, but the decrease in energy with elevation should be reflected in Planck's hv by the expression (1 - (g*delta t)^2/c^2), where t is the time taken for light to travel the difference in height for an equivalent change in velocity due to gravitational acceleration. This is the familiar unified correction factor for KE, except that in this case the change in PE is reflected by cross multiplying the denominator. Since relative velocity is not appropriate for light, g*delta t can be substituted for the change in energy for light traveling the distance h. On the other hand, we could substitute the Doppler shifted value for c in the denominator were it not a sin to defer to a c +/- v model, but we do not know the change in velocity. What we do know is the change gravitational potential based on h, and that's good enough, especially if if we have something more meaningful than Lorentz (our viscosity model) for purposes of calculation.

It works out in SI units that the value t for time can be replaced by the value delta h for change in elevation in meters if the square on that term is dropped, see last paragraph, giving (1-gh/c^2). Even though there is no velocity change acknowledged, though one can be inferred from the Doppler shift, the effect of gravity on energy change using the viscosity expression can be used, as the Lorentz correction from relativity is used to get a similar result. The gravitational change may assume an initial condition of zero if desired. I'm going to stick my neck out here, and guess that if the unified correction factor for energy change is used without any assumed change in light velocity, then accurate predictions for both starlight deflection as well as the Pound-Rebka effect can be obtained. At this point I have not even bothered to work through this problem, but here use the viscosity expression as a correct solution to Pound-Rebka. I cannot affirm any match with Collins or his calculations, though, by holding frequency (velocity) constant. The unified correction should give the correct answers in a straightforward manner. I leave it up to an

interested reader to check these for me. I should add that Collins has to double his own figures to match observed starlight deflection, justifying this by claiming a combination of direct gravitational pull and velocity change, tenuous methinks, though the idea is a rough stab at the better explanation in this paper. For now, I will not address starlight deflection, though the unified approach would work fine. I have checked the above unified correction factor against the energy change required for the Pound-Rebka experiment over the distance of 22.5 meters, and found them to agree perfectly, though the value reported by Wikipedia is only two digits (see last paragraph in this section for details). Whoops, earlier in this paper, Section 12, was given a detailed derivation when presenting the s

"Avoiding the velocity arguments for the calculation, we may replace Vi with g*delta t, which would be of the same proportion to the change in velocity for any body of mass, so that the decrease in energy over the elevation shift should be reflected by the expression KE * (1 - (g*delta t)^2/c^2). The numbers are the same as the Lorentz expression, which has no basis in reality, but in the viscosity approach the problem and solution are both entirely rational. It works out in SI units that the value t for time can be replaced by the value h for change in elevation in meters if the square on that term is dropped, giving delta E = E0*(1-gh/c^2)... The fractional energy change calculated by wiki over 22.5 meters is 2.5*10^-15 in SI units (this I take to mean Eo less this amount). The unified calculation as above then gives Eo*(1 - 2.4500*10^-15) using the above expression... A 10% level of agreement with general relativity is claimed, but clearly we can use the viscosity equation to get the correct result... we could also use a lower value of "c" corresponding to a decrease in light velocity coincident with frequency. The point is that if the v+/-c viscosity model is used and a non local calculation for v-c corresponding to classical Doppler effect, then we need not bother with relativity."

In a similar way, it is generally assumed, and was so by Einstein when he doubled his prediction of starlight deflection by the sun, that the velocity of light is reduced by a gravitational field, an admitted departure from SR, and that this is at least half the reason for the deflection of starlight by the sun. Since everyone measures the velocity of light as being the same in all directions (as confirmed by the Michelson-Morley experiment), this effect can only be explained by indirect measurements involving either clock speed or distance that originate in one gravitational frame and are then measured in another. Velocity "measurements" of this kind are inferred and not direct, while velocity measured at any local point remains constant for all observers throughout a gravitational gradient.

Therefore, the deflection of starlight passing near the sun may be considered as caused by a slower velocity as seen by the remote measuring clock, or equivalently due to the constricted matching distance, but it is not locally real along the wave front, and these differences are due to the fact that the light passing near the sun travels a shorter distance during a shorter interval than during either approach or departure. This is not counter intuitive if realized that a shorter length is the result of a slower clock in terms of how measurements are defined. At any local point, both clock speed and length diminish, so local velocities are always the same value (c) along the path, but for a velocity measured in a different (unchanged) gravitational field using intervals spanning a denser gravitational field but using only one "local" clock, the non local "perceived" velocity will be slower during transit near the sun, along a shorter path, and cause a perceived deflection. Light velocity would not be directly measured as being different near the sun (or at any locally measured point along its path) because of the simultaneous reduction in length during travel, but any time

intervals based on an earth clock when used to calculate a velocity not originating on earth would have to rely on that clock speed only, resulting in an inferred, not directly measured slowing of light speed in a gravitational field.

It is this subtlety that causes much confusion, since a statement that light speed is constant in a variable gravitational field is no less correct than stating that it is slower, depending on the position of the receiver and any assumptions about how distances and clock rates are measured. What should be at issue is the set of conditions under which such effects are considered, while these seem to be usually omitted in favor of Einstein's undefined "frames of reference" where imaginary coordinates are forced by use of Lorentz adjustments. These are too complex to be either easily described or understood for the uninitiated whose common sense is still intact. It is also equivalent to say that as the clock slows in a gravitational sink, the velocity is thus reduced, but this reduction is offset at any point along the path by an increase in velocity as determined by its frequency (blue) shift, the result being no local change in velocity.

It then becomes necessary to deny changes in light velocity or frequency as a result of gravitational field changes as they occur locally (along the photon path), because these will not be directly measured or real for any local point or even for remote observers who choose to use the "local" clock instead of their own local clock. If the claimed reduction in frequency at a higher elevation in the Pound-Rebka experiment is due only to the local increase in clock speed at higher elevation, as Renshaw maintains, then it seems very contradictory that logically, the relativistic increase in the velocity of light on entering a higher potential, as Einstein claims without regard to frequency dependent velocity, should shift the frequency instead higher. The constriction of length that Einstein himself believed must accompany the reduction in clock speed in a gravitational field is ignored as is the original SR interpretation of the Michelson-Morley experiment as being a contraction due only to uniform velocity. It should be obvious enough that on any account, special relativity was a collection of embarrassing mistakes that were partially corrected in stages leading up to GR. It is necessary, if conservation of momentum is conserved for light, that changes in velocity related to gravitational effects cited by general relativity are countered by their opposites due to frequency shift. Both vectors cancel to provide a uniform velocity for the local photon with respect to itself and any gravitational potentials it passes through, but the clock speed and length constriction effects will double Soldner's prediction for starlight deflection.

If the length constriction cannot be ignored, which is my own position, then there is no real local change in frequency due to either a Doppler or gravitational effect, so the frequency change measured at the upper height is NOT a local measurement, being not coincident all along the path of the light beam where it would not be perceived. But that makes the change in frequency and loss of energy no less real so both Planck energy and non local velocity dependent frequency change are what the receiver measures. Relativistic constructions such as inertial frames, alternative coordinate systems, and four dimensional spacetime are unnecessary obstacles to understanding. The unified formulas have good prediction power for a discrete E if the energy level for a given frequency is allowed to vary throughout a gravitational field according to the unified relation in the same manner as are length and clock speed. If the Planck constant remains fixed, however, it must be that the frequency of a specific atomic vibration varies with gravitational field strength, which it cannot. The Doppler style formulas traditionally used are similar in form, but rely on entirely different assumptions and aren't that accurate.

A little thought on the matter and it should become clear that the unified assertion is not a violation of quantum mechanics, only a necessary adjustment to Planck's constant for gravitational effect that matches the same for length and time constriction. The E=hv (energy equals Planck's constant times frequency) relation is clearly valid for any uniform gravitational field, except that a frequency shift occurs between gravitational potentials, and so then the energy value, E, must be adjusted by the same "relativistic" adjustment as are lengths and clock speeds for different gravitational potentials. By now we realize that "relativistic" is a misnomer, since there are no relativistic effects due to uniform velocity, but the Unified Field viscosity adjustment for energy changes in gravitational fields or inelastic collisions will give the correct results when used as previously described. It is important to note, however, that the value of Planck's constant may no longer strictly be considered fixed since the unified adjustment will alter its effect on E, and this could also be taken to mean that the value of h itself is altered by the unified correction. Whether the value of h or the overall expression is considered to be changed is not important, but the real meaning of Planck's hv relation is forever changed in two ways...

First, the energy potential of light for a given wavelength is not strictly dependent on wavelength, but on the combination of wavelength and gravitational field which are together required variables. While any change in the velocity of light when passing through a stronger field can be arguable depending on the conditions of observation or inference, the energy of that light will increase by all accounts, even for an arbitrarily fixed frequency; therefore, the value of Plank's constant must change accordingly. The same is true for any change in frequency with gravitational field strength, which according to the Unified Field will not occur along the local path due to simultaneous change in linear dimensions, and where these effects are inextricably tied to the consequences of a real slowing in clock speed and ether density for objects at lower gravitational potentials. But we are interested in the value of E for a given frequency; e.g., the same cesium frequency used by Essen for use with the atomic clock. Will that frequency have a different energy value at a lower gravitational potential? The answer is no in terms of any local measurements, because all of them depend on that frequency as a starting point in definition, but yes in relation to the higher potential. The difference is again calculated from the viscosity expression. Perhaps it is helpful to consider that all of reality is either constricted or diluted depending on gravitational potential, so that at any given potential everything seems the same.

Secondly, how then shall we regard these discrete packets of energy referred to as quanta when subjected to changing gravitational field strength? It is ever more obvious from the Pound-Rebka experiment that a discrete energy value is associated with either emission or absorption of a discrete quantum of radiation, and that lesser energies (higher potential energy) are associated with lower gravitational field strength (higher elevation), and that a higher kinetic energy is obtained when emitter and receiver are in uniform motion toward each other. The "packet" of energy required for absorption is identical to that required to move an electron from one fixed shell to another, and since that value is blue shifted on entry to a gravitational field (and where distances are constricted relative to the higher), the frequency of a given electron oscillation at a lower elevation must be "relatively" increased. Note that while length, clock speed, frequency and light energy all vary according to the same unified (or relativistic under bad premises) relation in gravitational fields, all of these and the value of a quantum of energy associated with a specific electron orbit will always be perceived as the same everywhere along the path of an object in transit through a gravitational

gradient, even a photon. Nevertheless, if a clock at a higher gravitational potential is used, the frequency of radiation and quantum energy at the lower must be taken to be higher; hence, we must conclude that the lower clock is slower and that this effect is real, even if not locally measurable. This is why an atomic clock at a lower elevation has indeed lost time when brought to compare with one at a higher elevation. Even though this may violate the notion of a Planck constant, this is a better interpretation of the Pound-Rebka experiment if the assertions in this paper are correct. There should be no red (or blue) shift (as measured directly) owing to either Doppler or gravitational effects along the path of a photon.

Unified Correction Factor Replaces Relativity's Lorentz

Pound-Rebka Solved Correctly - Not By Relativity

This was a check I really didn't want to perform. The Doppler/gravitational shift calculations for the Pound-Rebka experiment cited above were found at this link, Wikipedia, which is as good a source as any I believe for this kind of matter. The wiki calculations should not provide an adequate answer in my own cursory estimation, though it was clear that the result was close enough to declare the experiment a success. I have noted that there is a lot of similarity between Doppler calculations and special relativity that to me are based on poor logic but by coincidence may provide similar or at times even identical results. Nevertheless, there should be good agreement with the unified correction for a fractional change in gravitational (KE or PE) energy. The velocity of light cannot be applied, of course, but its gravitational equivalent for energy change would still be the product of g and the time interval for any freely falling body with or without mass (refer to the KE unified formula).

The time interval can also be replaced by delta h (distance or height) if the numerator is not squared; therefore, the energy change over the Pound-Rebka interval in unified terms would be E0*(1 - (g*delta h)/c^2). The KE in the original unified expression must be cross multiplied with the denominator on the left to obtain the correct KE associated with the shift in gravitational potential. As mentioned, the unified correction cannot use velocity ratios as in the original KE equation, because light velocity being constant cannot reflect the energy change in itself, and being equal to c, would yield infinity, an absurd result. The correction factor can still be used, however, by substituting for relative velocity in the numerator the product of acceleration due to gravity and change in either time or, if the term is no longer squared, the product of g and distance (22.5 meters for the Pound-Rebka experiment).

The equivalent gravitational energy is thus properly calculated by the unified formula, even for a massless photon traveling at light velocity, and the results do not confirm, but disprove relativity in any sense. The fractional energy change calculated by wiki over 22.5 meters is 2.5*10-15 in SI units (this I take to mean to mean Eo less this amount, a meaning I couldn't be sure of from the wiki explanation, but which seems reasonable to assume). The unified calculation gives Eo*(1 - 2.4500*10-15) using the above expression. To the 2-3 reported significant digits, this appears

at first to be near perfect agreement, although it seems that more precise values should have been reportable. The exact experimental results are not given, but a 10% level of agreement with general relativity is claimed. This is possibly not the same as the Doppler calculation initially cited since that is not a relativistic formula as Renshaw pointed out. Nonetheless, the unified adjustment is the only logically correct approach and will provide the correct answers, while Wikipedia's Doppler formulas do not appear correct and would agree only by coincidence. On the other hand, the theoretical fractional change in energy cited by Wikipedia represents exactly the same variables as the unified adjustment. Not only is this not coincidence, but it is yet another confirmation of the original unified equations.

These unified calculations can be done by any high school algebra student without any difficulty at all, so I invite the reader to check both the algebraic derivation described and the numerical result. Initially, I was braced for doom and then astounded to see the unified provide such good agreement with Pound-Rebka, not that perfect agreement should be expected. In fact, the unified calculation simply matches the same variables as the "relativistic" formula for gravitational potential cited by Wikipedia, it is only the form that the change in energy takes that is not in agreement. The point, though, has certainly been made that gravitational or Doppler wave shifts are not necessarily responsible for such results, which can instead be better accounted for by the standard Unified correction, making Planck's constant a variable resulting from gravitational effect using the same corrections for adjusting clock rates and lengths.

Here is where it is very important to instill a clear grasp of how this works, so please pay attention. This is the ONLY correct and straighforward explanation of Pound Rebka and the ONLY legitimate aspect of reality that Einstein's relativity has attempted to address. None of relativity posits anything remotely meaningful, and this particular issue is the only one that merits a simple elucidation. This, and only this explanation, will lead you to real understanding. Einstein was only correct about one thing, that clocks run more slowly in a gravitational field, but any attempt to fit that into relativity will fail. These may be seen as bold, grandiose, and extraordinary claims, but they are possible only because a person with university honed skills in mathematics has had the time and political freedom to devise a clean and unencumbered interpretation of the relation between gravitation and clock speed. The KE viscosity formula developed earlier matches the Pound-Rebka experimental results and represents a far more rational interpretation of the gravitational effects on clock speed, frequency shift, length and starlight deflection. The viscosity concept does not predict frequency shifts from recessional velocity of the Big Bang variety, whether called Doppler or otherwise.

Consider Pound-Rebka's beam at its origin at the lower elevation. We know that the clock is running a bit more slowly there due to the interference of matter with random ether movement and a higher viscosity. As the beam climbs towards the oncoming crystal, it meets it at the higher elevation where the clock is running faster. We know that the acceleration of the crystal during free fall will at some point make up for the lower frequency (redshift) due to the beam's loss of kinetic energy. Does it not seem odd that Einstein's theories predict that the beam will accelerate at the same time that it loses energy? Ever toss a ball in the air and watch it accelerate out of orbit? It's an odd notion, because it isn't true. What actually happens is that if measure the speed of the beam between those two points from the higher point, it will be gaining in velocity, yes, but only due to the faster clock speed. From the standpoint of the lower clock, the beam is slowing down at the same rate that the upper clock measure it as speeding up. On average,

the speed of light is constant between the two points. Likewise, we may just as correctly say that going by the redshift as the beam climbs upward, that it has slowed down to the identical degree. The speed of light is therefore not constant, but is both or either slower and faster depending on how measured, by time delay or by frequency loss. If you happen to be riding the beam, consider that neither of these apply. If your motion were to slow or increase, conservation of momentum would be lost. This means that as the clock rate increases instantaneously at each gravitational level, length must increase proportionally, such that no internal inertial forces are experienced. This is fact is correct. As you ascend from lower to higher gravitational potential, both clock speed and length expand. Remember earlier that this makes sense, because the definition of length depends on clock speed in terms of frequency. Neither of these effects are meaningful, however, for the person riding the beam's crest, but only for any two or more observers at different gravitational potentials between the initial and final states under consideration.

The approach of this paper, the Unified Field paradigm shift (by Foos), not to take any credit for alternative valid results by others, fully eliminates both the historically known logical errors in relativity and known discrepancies in measurements. It has long been a consistent observation that spacecraft velocity measurements have anomalous velocity increases. By anomalous, it is meant that the accelerations exceed the predictions of (special) relativity and are taken by physicists to represent a "new" kind of physics. Renshaw points out that these anomalies simply disappear if the relativistic corrections are removed and vanilla Newton (old physics) substituted, while this paper asserts that this doesn't quite fix the problem, but this Unified Field version by Foos will be certain to do it by making meaningful non-c adjustments to differential ether resistance for different atomic configurations. I would have never imagined a year ago that these issues would be so well resolved and even lead to a better understanding of Planck's constant, at least for my own limited ability to fathom such things. The bottom line is that a quantum of electromagnetic energy, as represented by a single photon, will increase in proportion to the strength of a gravitational field and decrease when leaving "relative" to measurements not in motion with it. This means that the local constancy of light velocity versus measurements from different gravitational potentials are simple effects of two vectors, the classical Newtonian vector then added to the effect of a difference in clock speeds. These two potentials cancel in terms of local travel through gravitational gradients, but are additive for remote measures of refraction and time delay for the clock vector such as starlight deflection. Remote in this case also applies to measurements at either end of a gravitational gradient where the opposite velocity change is measured in terms of red or blue shift as demonstrated by the Pound-Rebka experiment.

No physical measurement is exempt, including change in mass as an effect of gravitational field strength. All of these changes are real, but not detected in the local frame, and yet all are also a consequence of unit definitions inherited from a variable clock rate. Note that as potential energy decreases with elevation, so does mass, while energy released due to random kinetic energy from the inelastic collision of a falling object will result in increased entropy. These things are considered relativistic effects, but they are not except for the first postulate of relativity, though not very meaningful, the rest of the theory conveying serious misconceptions about both cause and effects, while requiring that they conform to serious faults in both logical analysis and mathematics . Increase in mass will occur also coincident with and to the same degree as length contraction, slowing of clocks and quantum energy, the famous e=mc^2 relation being a straightforward consequence with the exception of c needing again to be replaced by a slightly smaller

value depending on atomic configuration and the fact that it is not energy that is converted to mass, but the energy of that mass released by an inelastic collision. This is then nothing other than the classical kinetic energy equation where velocity is pushed to whatever c is thought to be. No magic.

I notice an interesting formula length contraction by Peter Dunsby that he attributes to Schwarzchild spacetime. I say at first glance that the same result can be far more rationally obtained by the Newtonian / clock speed formula as above, though at the moment I'm not going to pick my way through it. Anyway, he cites the following derivative for change in distance, for a "ruler" (fixed at t, phi, theta), ds = ((1-2GM/c^2)^1/2) dr. I won't even bother to do the algebra required to prove that this is equivalent to the Pound-Rebka formula above that I derived independently, but the real formula is based on a logically coherent premise of ether viscosity instead of an air castle called spacetime. Note that the numerical constant is 2, not 4 as required for starlight deflection, since only one vector is being considered. All such equations, or more suitable counterparts, as in the good examples I've provided by doing so myself, can be derived far more simply and rationally by assuming an ether viscosity coincident with gravitation that is caused only by the external shielding of high velocity, random, subatomic particles. In addition, by modifying the c term to reflect slightly different atomic resistance to the ether, the inconsistencies of observations by the space program with Einstein's formulas are also readily corrected.

It is now early March, 2010, and this work is basically finished. It is really not all that carefully or exhaustively done, but it is the first work, however lacking anyone else's acknowledgment, that cuts to the bottom of the Einstein fallacy and makes the necessary corrections. I will continue to weed out grammatical errors and awkward phrasing, and may even provide better if lengthier explanations such as a detailed proof for absolute simultaneity. It isn't that these things are all that difficult, but the crux of this relativity critique and the first real (and simple) alternative solution risks a loss of clarity with too much supporting verbiage. I will also gladly, if unexpectedly required, engage in serious discussion with anyone interested in my signature masterpiece, the randomized block theorem, or my very good solution to the relativity boondoggle.

Meanwhile, here's a man I like.
And here's a video that demonstrates the unreality of a Big Bang.
NO Big Bang is affirmed modern physicists here.

Proper Explanation for the Eddington Expedition

If I haven't done so already, now is a good time to explain in simple terms the starlight deflection that thrust Dr. Einstein to fame in 1919 and the ridiculous ticker tape parade in New York City. It may also be good to trace his movements up to that point. After three versions of special relativity riddled with errors and absurd propositions, Einstein shamelessly copied Soldner's 1804 paper that made the same prediction, word for word and under his own name. Einstein was already known for brash plagiarism, but he got away with it by making different interpretations of

work plainly done by someone else, and more often than not was able to deny having known about it, thus appearing to have exceptional powers of insight that he did not have. To understand the simple reality behind these extraordinary events, we then begin with Soldner's paper. Soldner made his prediction by using the known laws of gravity bestowed on us by Isaac Newton. Although a "photon" has no measurable mass, it was never any secret that light lost or gained energy in the same way that material objects due in a gravitational gradient. When the cradle falls, it gains kinetic energy, just as a beam of light undergoes a shift to higher frequency (blue shift), and vice versa. In the same sense, light will be bent towards the normal when passing a source of gravity. I've never attempted Soldner's calculation, but am not afraid of it. Imagine that an object is bent as it passes near the sun, first as it is accelerated until it passes and then again as it slows to its original velocity. If that object were a ray of light, then the image of objects on the other side would shift. This is similar to refraction. It turns out that gravity does this to light. We don't need to know it's mass. You see it happen all the time to rockets and other objects. It's a very familiar concept. If you know that light also speeds up and slows down, it's not so hard to visualize, but it's made a lot tougher by Einstein's claim that light speed is constant. Actually, Einstein modified that claim to say the reverse for General Relativity, that light slows down when approaching the sun and speeds up as it passes by . In fact, light speeds up and slows down just like objects of measurable mass, at least from the standpoint of frequency shift. If treated in this way, then we can easily derive a method that gives the same result as Soldner, just as we did for the Pound-Rebka results. But just give me the benefit of doubt, here, because I don't want to disturb your concentration with unnecessary difficulties. It is important to note that, had either Newton or Soldner stopped to reason out the necessary fact that clock speed must be reduced by gravity, then Einstein would have had to modify his own paper prior to 1919.

So, that's how we can use Newton's formulas to arrive at Soldner's results. Einstein must have been pretty proud of himself after publishing Soldner's paper as his own. The trouble is, for some unknown reason, he changed his mind and predicted that the light would be deflected by twice as much, hence the suspense building until the Eddington expedition. It's been claimed often enough that the results were tampered with by Eddington to favor Einstein, as have been many other well substantiated claims later, notably the infamous Hafele-Keating experiment. But we don't need to cast Eddington into doubt, nor do we need Einstein to figure out that the results should favor his last prediction. If the photon has no measurable mass, then we can be confident that the wave represents a disturbance in the underlying medium itself. We also know that there can be no internal inertial change in the travelling photon, another way of saying conservation of momentum. If the velocity of the photon must be constant with respect to itself, then we know that the changes in velocity as measured from remote positions must be due to changes in clock speed at different gravitational potentials. If that seems difficult to understand, then read the first part of this section again. So Einstein must be wrong, light speeds up as it approaches the sun and slows down as it leaves the influence of gravity, just like all objects in orbit around it. From this, we can duplicate Soldner's prediction. But he's also right, light slows down as it approaches the sun, and speeds up again as it departs. That should be absurd? Has anyone ever seen a ball tossed in the air pick up speed and leave orbit? We are saved, however, by the realization that this change in velocity is offset by changes in frequency that conserve the principal of momentum. For the photon, there is no change in velocity along its path. But if the ray of light is slowed down, then would its direction of travel also change? The answer is yes. Review the "marching analogy" for the refraction of light through glass. Even though the velocity of the ray is increased by gravity in one sense, this is only perceived as a change in frequency. Even so, this affect also

causes the ray to be bent towards the normal, similar to the effect of refraction in glass. On one hand, the ray of light accelerates on approach to the sun, and this causes a deflection towards the normal, and on the other, the beam decelerates as it enters a thicker medium right along with a watch dial and this "refraction" effect again causes deflection towards the normal. Even though clock speed increases past midpoint, the deflection continues in the same direction as the beam exits the field. If this isn't clear, study the way that a glass lens bends light. The glass slows the beam of light, but the medium isn't thin enough to affect clock speed (other than to prevent one from working if stuck in it). This effect is also known as the famous "Einstein lens." It's nothing but familiar refraction of glass with the added twist that the medium is too thin to be perceived except indirectly through the effect it has on clock speed or the bending light. It is also the finest example of viscosity, Brownian motion and osmotic potential. On the macro scale of molecules we also find examples of particle aggregation due to the differential kinetic energy of molecules in motion between outer and inner surfaces, though effects are far more coarse than gravity.

At the same time, the velocity of the ray is decreased by gravity because clock speed is diminished as we now know that it must be, and that if clock speed is diminished, then distance must contract to the same amount required for the velocity of a photon whose path crosses a gravitational gradient to remain constant. We know from the study of refraction and the marching analogy that this should also cause a deflection of the beam towards the normal. This will also be seen from a remote vantage as a delayed arrival. If Einstein was bold enough to publish Soldner's prediction as his own, then he should have been smart enough to realize that a delayed arrival from a distant source would cause a ray of light to be refracted. If he had any sense at all, he would realize that for the conservation of energy to hold, that Soldner's prediction would have to be doubled. But Einstein never delivered such a simple and obvious answer. If he had, he would have not have escaped the pull of gravity and left looking a mere mortal. Instead, we have the Einstein-Hilbert tensor equations which appear to predict red shift owing to the Big Bang expansion and all sorts of weird things that are firmly contradicted by good observations. We forget that Einstein and Hilbert were friends and close collaborators, especially when the original plates for Hilbert's publication were defaced only days before Einstein's paper was published.

Having finished my appraisal of Einstein's work and finding a much simpler solution to real phenomena, I find myself required to offer an apology for what may seem to be some very harsh judgments. The calling of God is contrary to such sentiments, but is instead marked by gentleness and long suffering. Einstein is no longer with us, however, and it seems more appropriate to defend the honor of other men who have been unfairly suppressed. I am now aging myself, and it seemed appropriate to contribute some simpler and more straightforward solutions to some seemingly complex scientific issues while I have time. I may have delayed the call of Christ in so doing, expressed personal bitterness, even put my own salvation at risk, so I hope to call this project finished. My hope is that someone out there might find the ideas useful as an aid to practical and better understanding. I am by no means a great mathematician and have no wish for acclaim other than to help people perceive the truth more easily in those tiny niches where I've been able to shine a small ray of light. It might also be an illumination to you that the atheistic assumptions driving much of modern science is based on very poor rational inference. Now, I thank God that the call of Christ is returning, and that I might be honored to contribute far more value by following it. I also continue to earnestly seek God's forgiveness and patience for so many failings along the path, the possibility of being deemed unworthy in the end being all too real.

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